COLLEGE AND STATE

JANUARY—FEBRUARY 1920

Vol. 1 No. 1

A Publication

of

The North Dakota Agricultural College

Fargo, North Dakota

Entered as second class matter, February 13, 1917, at the post office at Agricultural College, North Dakota, under the act of August 24, 1912.

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Editorial Board

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C. B. WALDRON, A. G. ARVOLD, ABBIE L. SIMMONS, L. R. WALDRON — Associate Editors
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A Sense of Evidence

A writer in one of the periodicals declares that there are three million persons in the United States who can be made to believe anything and who stick to the belief long after the purpose in deceiving them has disappeared. There are many who accept evidence in kind or amount that would not be thought convincing and conclusive by judge or scientist. There are restricted fields in which dependable evidence is regarded as indispensable, but in other cases, notably in political, ethical, and economic matters, there is often a most unscientific laxness. Education can render a great service by spreading the right ideas regarding how to go about it to find out whether a thing is true or not.

State College of Agriculture and Mechanic Arts— State College

R. D. Stewart, Class of 1920

During the past term of school there has been a great deal of discussion as to the advisability of changing the name of the North Dakota Agricultural College. Arguments both for and against such an action have been presented for consideration. Up to the present time the student commission and the editorial staff of the Spectrum have taken action favoring such a proposition. These organizations have expressed their wish to change the name of the institution to State College.

Arguments advanced by student organizations and others favoring a change in the name of the institution are:—

1. Full title gives more information as to courses offered here than does the title Agricultural College.
2. Short title, while naming no courses, invites investigation. Students are going elsewhere at present because agriculture is apparently the only work taught here.
3. Names no course at the expense of others.
4. Short title is much handier for correspondents of the college.
5. Changing of name will not lose the support of farming population, since agriculture will still be a major subject taught here.
6. State College is name used in large percentage of like institutions in the country.

The change of name of the institution should mean an increase of the prestige of the school with the general public of the state. The majority of the college faculty and men connected with the experiment station are in favor of this new movement.

The Modern Language Situation

Leon Metzinger,

Professor of Modern Languages

The world war has brought about great changes in the educational field. But few lines of instruction have experienced such a change and stirring up as the field of modern languages. The beginning of the war saw the study of the German language and literature at its height. Great departments in the subject had been developed at our larger universities; Wisconsin had a German department that would have made a fair-sized college, while Chicago and Illinois and in fact all of the more important institutions of higher learning in our country had departments of German that ranked among the first and in some cases first in point of number of students and professors among their departments of study. During the war there was a gradual falling off of interest in German, which reached a low level during the period following our entry into the war and continuing almost to the present time. In high schools and even in some institutions of college grade a more radical change took place, in that the study of German was prohibited by legislative enactment or institutional decree.

There was fear that the revulsion of feeling against German would result in a permanent loss to modern language study and for several reasons this fear was not an idle one. The enemies of modern language study lost no opportunity to point out what they pleased to call the uselessness of and even danger in the study of modern languages. Nevertheless a great part of the interest that turned away from the study of German accrued to the interest in Romance lanuages. With our boys going across in a constantly swelling stream, people began to the friendly feeling for our comrades in the struggle quickened the interest in the study of their language and literature. There was, however, one great drawback in the lack of sufficient properly trained men and women to teach the language. The supply of teachers of French was wholly inadequate to the demand, so that institutions of higher learning were forced to accept the services of less well-trained men than had been teaching German, and high schools often found it impossible to get teachers that had even a semblance of the proper training for this work. Under these circumstances modern language study was bound to suffer and did for a time suffer greatly.

A counter tendency, however, has been the broadening influence of the war. We see now as never before that our interests are intimately bound up with those of the rest of the world. It is our business to know what Germany is doing or intending to do even tho that does not affect us directly. We must know what Japan is planning for the next generation, what Russia will probably undertake in the next half century and what is at the bottom of the seething Balkan group of countries. These are questions that from the point of view of our own safety we cannot afford to overlook. But there is a deeper current that is striving for a better understanding and a closer, more friendly intercourse with the peoples of all lands. Surely, unless all of our professions of Christianity and love of our fellowman is the hollowest mockery, the world will have to try to eliminate in the future the ghastly horror of war, and one influence in the right direction is a better understanding among the nations of the world. We must study and know the language, the customs and the lit-

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erature of the nations if we would be on friendly terms with them.

Trade relations and business opportunities are also demanding a greater knowledge of foreign languages than we possessed before the war. No country appreciated the value of having salesmen and business representatives that could speak the language of the prospective customer more than did Germany and no country was more rapidly coming to the front in the matter of foreign trade than she before 1914. Vast opportunities are just now opening for American capital and ability in the Latin-American countries. Eastern banking houses are offering really tempting salaries to men who besides being able to correspond in English are able to speak German, French and Spanish. Business ability is not required tho of course desired. These men are wanted as representatives to go to the South American countries that appear to be in need of American capital. It is therefore no wonder that language study is getting more popular than before the war and that more students are enrolling for this work than ever. A neighboring state university enrolled over two thousand students in Romance languages and was forced to turn away hundreds more because it was impossible to get properly equipped instructors to teach the classes.

Interest in the study of the Scandinavian languages has not been stimulated to the extent that might have been expected. These languages received little of the attention that was lost to the German but they have nevertheless maintained a normal increase in interest. Russian is receiving added attention but not the amount that it would have received had the government developed along conservatively liberal lines. There is no doubt, however, that neglect of the study of Russian will mean great economic loss to our country, for her markets will be dominated by Germany who already knows her language well and is her nearest neighbor.

But what position will the study of German occupy in our courses in the future? There can be no doubt that in past years too much emphasis was put upon the study of German, especially in relation to other important languages, such as French and Spanish. This was particularly true in the middle west and less true of the east and south, where French and Spanish were respectively emphasized. Moreover German was not always taught from the point of view of true Americanism. We had too many teachers of German in our high schools who were not Americans and indeed even in our colleges the foreign-born instructor was far too numerous. It is this fact probably more than any other that led to the banishment of German from our high schools and colleges, tho jingoism and war hysteria doubtless played a prominent part in the matter. The study of German, however, cannot be safely left out of our schools. We must keep in touch with what Germany is doing and unless we know her language we cannot do this. During the war German enemies within our borders were not able to do any material damage or carry on any plotting successfully because their language was too universally understood by loyal American citizens and surely in case of a recurrence of the late unpleasantness no true friend of our country would wish that we be in a less favorable situation in this regard.

Then too German science must be reckoned with. Since the close of the war Nobel prizes for 1917 and 1918 have been awarded to German scholars and in the field of chemistry and in most fields of scientific research we have now and

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will continue to have for a long time to come much to learn from books and periodicals printed in German. The literature is well worth our study and let us hope that Germany's national life will develop along lines that will make it possible sible for the free nations of the world to welcome her into the circle of a family of peace-loving peoples.

In German as in all foreign language study the danger is not that too much time will be devoted to it, but that the instruction may not be from the proper point of view. Let the teachers be true Americans and all will work out for the best. This must be especially emphasized in the high school and undergraduate classes.

Nature Study in the Public Schools

George Edwin Miller, Associate Professor of Biology

The scope and aims of nature study have been very much misunderstood. Some folks will go into raptures over a sunset or over clouds and color effects and call this nature study; others examine a flower and in that find only something to admire; still others admire the landscape and call this nature study. True, these observations may be a part of, but they are not in themselves nature study, and they do not include all that there is in nature study. Because the scope and aims of nature study are misunderstood the subject has sometimes been called nonsense.

Nature study is a study of nature and not about nature. This implies the presence of the thing to be studied. Pictures, textbooks or other information cannot take the place of the object. Many teachers use illustrative materials whenever possible and have been teaching nature study without knowing it. This study is not confined to the grades only, but should find its way into the advanced subjects taught in high schools and colleges. Where the objects are present, as they should be, in laboratory work in the sciences, we have nature study and a chance to have it rightly taught. However, often in the advanced sciences where the nature study method should be most used, the teacher in charge is content to impart the information rather than give the pupils a chance to learn by observing and examining the actual object.

The study of nature in the grades does not imply the addition of an extra subject to an already crowded schedule. Nature study can be made a part of the other subjects. In the beginning work in language objects should play an important part. Geography includes practically all of the natural sciences and to combine it with nature study is very easy. In fact most of geography would be unintelligible without an understanding of plants, animals, soils and other natural objects. For work in art nothing better can be found than the forms and colors of nature. Flowers, weeds, trees, insects, butterflies and birds are so beautiful and rich in color that they appeal to the artistic sensibilities of everyone. Nature lessons and art lessons can thus be combined, and the materials for both lessons procured at the same time. Likewise literature and nature study can be combined. The literature employed must be founded on fact, not on fable or fancy. A strong protest should be raised against the using of myths and fairy tales in teaching about natural objects. The knowledge gained should be truthful and usable.

The teacher of nature must be always observant of nature and should call the attention of the children to such objects as they are able to understand. If the teacher or a pupil finds an interesting insect, bird, flower or stone, let her show it to the children and have them observe all that they can about it. In these informal lessons let the children express themselves fully about the subject. A similar method can be employed to call attention to the seasonal changes in animal and plant life, and in the earth and the air. An observing teacher will find no limit to the lines of work which may be considered.

In the primary grades the nature study material is studied with a different motive than in the higher grades. The main purpose is for expression and the cultivation of the observing powers. The teacher can give considerable guidance in the observations by asking questions. Children should not be told what they can observe for themselves. The questions asked by the teacher should be of such a nature as to direct the thought and stimulate the observation. This implies that the teacher is thoroly familiar with the object studied and has gone over and arranged the points to be considered.

The study of objects under natural conditions or in their natural surroundings will give the best results. However, when this is not possible, many of these, such as growing plants, live animals in cages, as mice, rabbits, guinea pigs or squirrels can be kept for a time in the school room. Water forms such as frogs, toads, fish, mussels, snails can be kept in a glass tank or tub. When the living plants or animals can not be had, then others, mounted, preserved in formaldehyde or dried, must be substituted. Other objects which can be kept in the school room are the natural and manufactured products of plants and animals, as well as minerals and other geological specimens.

Models of clay, sand and other plastic materials are useful in geography work. Likewise in the teaching of physics, glass models of pumps give a better idea of the operation of pumps than real pumps do. Anatomical casts are a great aid in teaching physiology; the dissectible ones are especially instructive. Pictures often aid a great deal even when the object or parts of the object are present. Diagrams also are useful in giving a more comprehensive idea. Blackboard drawings simplify explanations, which without them would be long and difficult to give. Nearly every lesson in nature study will afford an opportunity for a drawing of some sort. By a diagram or sketch one can quickly show the plan of a flower, or a house, or the internal structure of an engine, or whatever subject is under consideration. At the close of the study period, pupils and teacher may give further aid in getting an understanding of the subject by relating incidents of personal observations or thoughts gained from reading books on the subject.

To have materials for nature study on hand ready for use at any time a way of keeping and a place for storing are necessities. Any teacher can in a short time accumulate a helpful collection of materials in most any region, by taking them when they can be had and properly storing them. Many teachers of the sciences fail to make or keep a collection of things which can be had easily if collected at the right time. That teachers do not provide themselves with materials is shown in the fact that supply houses for both zoological and botanical materials often have calls for such common objects as house flies and corn stems. The collecting, preserving and storing is a simple matter when rightly attended to.

For a preserving fluid to use in this work a solution of formaldehyde in water will be both the cheapest and the most advantageous. The specimen either of animals or plants should be placed or packed into large necked bottles or jars. If plant tissue is being preserved a solution of five parts of formaldehyde as purchased, and ninety-five parts of water will be sufficiently strong enough to store the material indefinitely. In preserving animals the proportions used should be ten parts of formaldehyde and ninety parts of water. The jars in which these materials are placed need not be sealed, but they should be covered with caps, corks or stoppers to prevent evapoartion. The solution does not decrease in strength thru evaporation, but increases as the water not the formaldehyde evaporates. New solution should be added once or twice a year to replace what is lost by evaporation as the materials should always be covered by the liquid. Specimens preserved in this solution will change but little in color even when exposed to the light. The place of storing during the winter months should be warm enough to prevent freezing as the solution used is mainly water.

Since nature study links all branches of knowledge and forms a basis for all sciences and as the materials are so plentiful and easily obtained may we not have more real nature study in the schools?

Art as a Factor in our Lives

Pauline Blake, Art Instructor

There was a time not long ago when people considered that art was for the favored few. Today we believe that art training is for everyone and that it should affect our everyday lives. We see about us on every hand objects which, judged from the design standpoint, are either good or bad. It is our right to know how to distinguish between them and why we make that choice.

Today art is being taught to grade, high school and college students thru the means of design. In every school the majority of pupils have but little talent for drawing and but little creative ability. These students have within them, however, the power to appreciate fine things. It is the duty of the art departments in our schools to cultivate and foster this taste. This teaching of art from the design standpoint serves equally as well for the talented few who will develop into designers and craftsmen.

We in America are coming to see art as a practical thing and to know that it is a paying investment. We are also beginning to see the need for American trained artists and to realize that their training must come thru the public schools. The war has helped to bring about this change in attitude. For years American manufacturers have relied upon foreign designers and skilled workmen to give a beautiful art quality to their products. Today these same merchants and manufacturers are forced to turn to the American schools for their artists. For this reason there is great need for practical training in art in our schools.

A knowledge of art principles is an adjunct to all of us. We are all concerned with the everyday problems of dress, of advertising and of house, window and stage decoration.

Everything we choose calls into play our critical judgment of art values or good taste as we often call it. Students should be made to feel that their knowledge of art principles is indicated by the thing they choose. The design principles are good line, dark and light and color harmony. In the home not only is each room a problem of design but each wall in the room is a problem in design in the arrangement of the pictures on the wall and the furniture against it. The furnishings such as draperies, rugs, furniture and pottery must be carefully selected as to line, value and color in order that each may take its place in the unity of the whole.

When a girl is called upon to select a costume she is really confronted by a big problem in design. The lines of her dress, its value and color, her choice of hat, shoes and gloves to complete the costume, all indicate her good or bad taste.

Store keepers have discovered that if their merchandise is arranged in an orderly way with some thought as to the general effect in line and color their shops present a more attractive appearance. They also have found these same principles of great value in their advertisements such as posters, news ads, car cards, booklets, catalogs and billboards. The training in design received by students in our schools has already affected local advertising and in the future will bring a higher standard of workmanship. During the recent war there was a great scarcity of real telling war posters.

The successful window decorator, by the right use of contrasts in values and color, brings out anything he wishes to emphasize. Very beautiful and telling effects are often obtained. Why should not every merchant in every town, no matter what the size, try for simple artistic effects in his window decoration?

Professional scenic artists are producing wonderful stage decorations for our benefit, and after a little art study we recognize their use of good spacing, line, dark and light effects and color harmony to gain certain desired results. John Ferguson, a play produced in New York last year, was a masterpiece in light effects, in simplicity of treatment and in color harmony. The grouping of the characters on the stage, the old-fashioned fireplace as the center of the family life, the subdued light used with now and then a more brilliant light to bring out some point of interest, were all wonderfully worked out as a part of the whole.

Out of door pageants offer an interesting opportunity for application of these same principles. It seems that here in North Dakota, with our wonderful prairies as a background, there is ample field for this sort of work.

The time is coming very soon when every teacher of art and every grade teacher will have this training in the practical arts. Thru them the children in the primary grades and the pupils in the high schools and colleges will be trained in these big art principles which go to make up a finer appreciation for the beauty about us.

ALUMNI—L. R. Waldron '99, Editor

Beginning with this issue of College and State the alumni of the North Dakota Agricultural College have editorial representation. This action was taken from a two-fold standpoint. It is believed that the institution can be strengthened thru a greater cohesiveness and unity of purpose among the alumni and further that this magazine will serve as a medium whereby the public may gain some knowledge of the activities of the alumni thru various articles which will appear by them and about them from time to time in these pages.

In this issue appears a review, by Dr. R. S. Amadon of the school of veterinary medicine of this college, of a book, Experimental Pharmacology, written by Hugh McGuigan, Ph.D., M.D., professor of pharmacology and therapeutics in the college of medicine, University of Illinois.

Dr. McGuigan graduated from this institution with the class of 1898. He was made instructor and later assistant professor of chemistry at the agricultural college, taking some graduate work at the same time. In 1900 he was scientific assistant in the bureau of soils, U. S. department of agriculture. He entered the medical school at the University of Michigan in 1901 and in 1902 entered as a fellow at the University of Chicago, where he finished his doctorate (Ph.D.) in 1905. In 1906 he became assistant and, later, acting professor of physiology and pharmacology at Washington University at St. Louis. He secured his second doctor's degree from Washington University in 1908. He spent the academic year of 1908 and 1909 studying at the University of Heidelberg in Germany. He later became professor of pharmacology at the University of Illinois.

A Notable Scientific Work

Experimental Pharmacology

By Hugh McGuigan, Ph.D., M.D.,
Professor of Pharmacology in the
University of Illinois, College
of Medicine, Chicago.
Published by Lea and Febiger.
Philadelphia and New York.

With the great advance in all the fields of medical research the empiricism of the past ages is being rapidly replaced with knowledge based upon scientific experimentation and observation.

Close observation of the phenomena of life, especially with regard to perverted functions, constituted the sole source of knowledge available to the student of medicine during the dark ages of this science. In fact the broad field of medicine has proved to be a most fertile soil for rapid growth of empirical knowledge. However, modern methods of investigation are rapidly crowding these traditions of the past into a much deserved oblivion.

This applies with particular force to the advances made in the realm of pharmacology. The action of drugs upon the living organism has been a study of intense interest from the very earliest chronicles of history. Their preparation and administration were given over to certain persons who thru one means or another had acquired considerable skill in the handling and prescribing of drugs.

By an excellent method of classification Dr. McGuigan has compiled an immense amount of data with a liberal number of experiments and has culled out all superfluous detail from this material. The student is enabled to become acquainted with the physical and chemical properties and physiological activities of a large number of drugs. His interpretation of the drug actions is not based entirely upon the results obtained upon animals, as Dr. McGuigan has made the student the experimental medium in a large number of experiments. In this way subjective conclusions can be drawn which tend to impress the facts more firmly upon the student mind both as regards drug action and posology. The pages of the manual are liberally supplied with colored plates and diagrams which show the seat of action of some of the most important drugs and groups of drugs. These plates are very complete and concise, giving the principal facts at a glance.

The above brief remarks have been made from the standpoint of the student, and while the benefits derived by him are of paramount importance, let us add that the instructor will welcome such able assistance as Dr. McGuigan's work. The presentation of experimental pharmacology in the space of time devoted to the subject becomes a problem, the solution of which will soon be arrived at if a greater number of such practical books could be had upon the subject.

R. S. Amadon,
Assistant Professor of Comparative Physiology and Pharmacology.

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Schools and Fires

Many school buildings burn down, as all know who follow the reports of fires. Recently Bowdoin college lost a valuable structure by fire; not long since a destructive fire occurred at the Michigan agricultural college; the state normal school building at Cortland, New York, was totally destroyed by fire not long ago. Among the notable fires resulting in the loss of school property in North Dakota were those which destroyed the Fargo high school building and the chemical laboratory at the agricultural college.

Such frequency of fires suggests the importance of having a school official or committee to exercise vigilance with regard to fire hazards. Berea college, Kentucky, has a fire chief. Supervision to prevent fires should cover such matters as the refilling of chemical fire extinguishers and the teaching and the use of extinguishing agents, the cleaning up of rubbish and of oily rags which might ignite by spontaneous combustion, the discarding of rubber tube connections for gas, the non-use of any except safety matches, and attention to conditions in laboratories. It is important that students be taught to prevent fire and to act wisely in case of its outbreak.

Public buildings are now insured by the state, which should be an additional motive for extreme care with regard to fire. At the North Dakota Agricultural College a committee has been appointed to survey the institution for fire hazards and to enlist the cooperation of students and faculty to the end that there may never be a fire upon the campus. Why should not every school in North Dakota have its fire avoidance committee?

A Problem of Education

Consideration of compulsory universal military training will remain in abeyance, according to present intent of congress, until the December session, when possibly the show of interest in the policy will have disappeared and only a dead issue remain. It is well, however, for citizens to give heed to the grounds of decision.

The estimated cost is $600,000,000 a year, a sum about equaling the entire annual expenditure in the United States upon the common schools.

Provision for physical training is contemplated under other federal legislation, divorced from military features and making appropriate physical training available from early childhood up.

The moral effect, internationally, of the setting up of compulsory military training is to be considered. Were the system adopted, might the influence of the United States—its moral leadership among the nations—result in the adoption of compulsory universal military training by

Canada, Mexico, the Central and South American Republics, Japan, England, Russia, Germany and other countries?

The late war aimed to overthrow militarism and Prussianism. Would it be proper for us now to espouse universal military training? Does military training tend to breed war—is it analogous to "gun-toting" in private life? Is compulsory universal military training necessary?

The proposal to train all young men in the United States to be soldiers should be viewed from every angle, for it is a problem of education in the broadest sense.

The Teaching of Elementary Physics

Philo F. Hammond, Professor of Physics

Physics is usually considered a hard subject. From the standpoint of the student it depends upon the natural bent of the individual as to whether this is true or not. From the standpoint of the teacher physics is a hard subject to teach in a way that will produce satisfactory results. This fact is quite generally recognized by teachers who have had experience in teaching several sciences including physics. The reason for this seems at first somewhat difficult to analyze. A little consideration of the nature of the subject will reveal the reason however.

To secure a working knowledge of physics does not mean merely to learn certain facts altho it is necessary to learn many facts and in a way not only to be able to reproduce them but in such a way that these facts will become and remain an almost instinctive part of the individual. This is especially true of terms and of statements of the so-called laws.

The object of physics teaching is not to acquaint the student with devices with which he may come in contact in everyday life altho such an accomplishment may seem desirable from a practical standpoint, and of course it may be necessary to give this phase of the work attention as a means of arousing interest. But it is not the fundamental part of physics. There has been, to be sure, a great demand for this kind of physics—to the detriment sometimes of our teaching. A study of devices as such is a study of facts, not of principles.

Physics properly taught is a study of principles in the broadest sense of the term. The aim of the physics teacher should be to teach principles and to train the student in what is commonly known as the scientific method of thinking. Either drawing from the pupil's own experience, or by experiment, laboratory or class room, certain fundamental principles are studied, and from this study clear statements of these principles are formulated. The last, but most difficult step in the process, is the application of the principles.

If the thought that the writer has tried to express has been made clear, it will be apparent to the reader why it is hard to get results in teaching physics. As the saying is, "You can lead a horse to water, but you can't make him drink," so it is, you can teach a child physics, but you can't make him think. He must do that for himself. Physics teaching consists of training the student in certain processes of thinking applied to physical phenomena. But to acquire these processes requires very largely the use of the memory and a very vivid imagination as well. Besides it requires upon the part of the student a will to stick to the difficult problems until he understands them. Assuming that the student is well qualified so far as memory, imagination and will power are concerned, to acquire an ability to think well and accurately is a slow process at the best, but deficiencies in these qualifications make the task very difficult. A child may learn to spell or he may learn certain more or less mechanical processes in mathematics and use but few of his faculties. He may study a language and make a creditable showing without using the thinking process to any great extent, but with physics such is not the case. The student may commit enough to make a showing on an examination paper providing the questions are of the right kind, but what he learns in this way he soon forgets, and, having forgotten, all that he knew about physics is gone. Physics is therefore a hard subject in which to obtain results if estimated by the right standards.

To accomplish the most in physics the student must grasp the underlying principles in such a way that he may be able to apply these principles to every conceivable physical phenomenon wherever they are applicable. The test is not that he may know, for example, how every type of engine in existence works, but that, having the facts about a given type of engine, he can apply principles learned in physics and by accurate thinking determine how it operates; in other words, having been given certain conditions, he should by correct process of reasoning be able to predict accurately the consequences, and if he has been properly trained he will have a desire to put the results of his reasoning to the experimental test.

Our methods of teaching physics have been developed by steps based upon the conditions met with when the subject first attained a foothold in the secondary school curricula and in many respects they are fundamentally wrong. Reforms come slowly for two reasons: lack of action on the part of the teacher because so many teachers of physics are lacking in proper training and because they know the old methods used when they were students and naturally follow them, and lack of action on the part of administrators because either they do not see the defects of the present system or they are unwilling to go to the trouble of bringing about necessary conditions to make reforms possible.

We have thought of different means of teaching the subjects of physics too much as if they were separate units. Laboratory work has become dissociated, so to speak, from the class work. Class room demonstrations by the teacher, laboratory work, problems numerical or otherwise, quizzes, and written tests, all should focus to the same point, all should have but one aim in view—the training of the student in the process of scientific thinking. For what purpose? So that he may apply his ability to think to problems in life in the home, on the farm, and in the factory now and in the future.

For this reason laboratory work should not be separated from the recitation periods. In the high school a class period in elementary science should be a double period. Apparatus should be provided giving the laboratory work first consideration and class demonstration apparatus second consideration, and for the laboratory there should be a sufficient number of pieces of each kind to do the work well—at least one piece for every two students for most of the exercises.

When a new subject is to be taken up, for example, work and machines, after a short preliminary discussion to define terms used and to give the pupil a general notion of the work to be done, the laboratory work should be done as a means of studying the underlying principles. The laboratory period should be made a study period—a period for training in scientific thinking. The student should understand that he is to be held responsible for all principles covered in the laboratory. The student should be furnished with syllabus sheets which lead him in the right road, but which do not do his thinking for him. They should contain questions on different aspects of the exercise and upon various applications. Students are expected to ask questions, but the number of students should not be so large that the teacher's time is all taken up with aiding the students in manipulation difficulties and with answering questions. The teacher should ask more questions than are asked by the students during the period. The teacher can handle more students when all are working at one problem than when many problems are being worked. However, twenty students should be the maximum. The laboratory reports should be corrected before the next period. Errors should be marked, but the student, not the teacher, should put in the corrections. Laboratory work should be continued without interruption until all exercises covering the subject being studied are completed. This may take one or two periods or even five or six in succession.

The laboratory work should be followed by a general discussion of the principles involved, covering definitions of terms used, etc. This may take the form of a quiz, or of class room demonstrations to elaborate the principles more fully, depending upon the nature of the topics under discussion, but in all cases the laboratory work should be closely correlated with the other work and should precede the general discussion in most cases; it as well as the tests and the general discussions should be used as a means of studying principles. Following the general discussion a large number of practical applications to concrete problems should be taken up. This can best be done by means of questions such as, "Why is it necessary to add salt to the ice in order to make the cream in an ice cream freezer freeze?" (See Mann and Twiss text, Scott, Foresman & Co.), and lastly, but not at all of least importance, come the numerical problems. If the work has been well done up to this point the student is ready for a written test.

With this method the student's interest is not allowed to lag as in the case when laboratory exercises are worked many days after the principles illustrated have been covered in the class room. If the work of the whole class is confined to one exercise the whole interest can be concentrated upon this exercise and furthermore the ill effect of student's consulting with others who have worked the exercise at a previous laboratory period is eliminated. The teacher's thought is concentrated upon the one exercise, making better work possible, and the laboratory reports are easier to correct.

The high schools of the larger cities are equipped to do the work as here described and many of them use the double period system. The greatest difficulty in these schools is the large number of pupils assigned to one class. The number in a class is far too often limited by the size of the recitation room or of the laboratory and not by the limitations of the teacher to do good work.

But how are we to meet the objection that laboratory apparatus for the smaller schools cannot be obtained to do the work as outlined? The writer increased the number of laboratory pieces in a high school laboratory for most of the exercises given from one or two to ten with an expenditure of a little over $200. This could be done, of course, only since the laboratory was otherwise fairly well equipped. This was several years ago, but double that amount could easily do it today under the same circumstances. What would you think of a contractor who would hire a skilled carpenter at present wages and give him such poor tools to work with that he could do only half as much and half as good work as he is capable of doing? What do you think of school boards and administrators who hire teachers and pay them even a meager salary, and then make conditions such that they accomplish but half what they should? Suppose an investment of five hundred dollars or even a thousand dollars increases the efficiency 25%, would the investment pay? What would a man in business do? What should our schools do?

During the last ten or fifteen years there has been much agitation to make physics practical. This has resulted in some cases in an attempt to make physics a vocational subject. But physics is not a vocational subject, and such attempts are futile. Physics is an intensely practical subject, but not from the financial standpoint. Its practicality is universal. It is the basis of all science.

It is one of the fundamental principles of education that we should proceed from what the child already knows. In the teaching of physics we should begin with illustrations familiar to the student to develop principles. Our illustrations so far as possible should be drawn from appliances with which the student is already acquainted. It is not so much that a thing is useful that makes it interesting, as it is that it is associated with something with which we are already familiar. In the laboratory we may incorporate experiments which use practical appliances which will help arouse interest in the student. In doing this, however, we must not forget the aims of our physics teaching, and that the laboratory work is part of our process of teaching. Laboratory exercises should be chosen to teach principles. If they fail to do this, then they fail to accomplish their purpose.

Tile Drainage in North Dakota

R. M. Dolve, Professor of Industrial Engineering

Extensive tile drainage is required only in the eastern section of the state altho there are isolated farms and small localities in almost every part of the state that could be greatly improved by under drainage. The importance of drainage in the Red River Valley is increasing with the development of its agricultural resources and the rapidly rising land values. One need but view the broad expanse of this level area thru the car window, after a prolonged rain or during the spring thaw, to become convinced of the urgent need of better drainage. Acres upon acres of the best soil in the valley are yearly rendered unproductive, or at best only partially productive, thru the presence of too much water.

There are many farms in this section of the state whose average producing capacity would be nearly doubled if their owners would expend from ten to twenty dollars an acre in tile drainage. This expenditure of money would prove as good an investment as when only a comparatively few years ago many of those farmers bought land adjoining their homesteads for that price.

The Red River Valley has passed the stage of being a new country where only the lands having good drainage are farmed while the undrained or poorly drained lands are reserved for pasture or hay. The progressive farmers of this section have learned that if farming is to continue profitable they must put every acre under the plow so that a system of crop rotation may be practiced and the fertility of the soil thereby conserved. They have learned that it no longer pays to have their pasture and hay meadow continually on the same piece of ground. But in order to make farming of this low pasture land profitable drainage must be resorted to.

These farmers have learned too that fields which drained well when new now easily become water-logged so that, where formerly a crop was assured, it is now often destroyed by water. People are prone to ascribe this change of affairs to a change of climate and a greater annual precipitation but statistics do not bear them out in this supposition. In the writer's opinion this result has been brought about by depleting the soil of its humus and by farming the soil when so wet that it puddles. In its virgin state the soil was made porous and open by centuries of accumulated humus in the form of roots and partially decayed vegetable matter. This humus not only made the soil porous but it caused its thoro ventilation and also prevented the soil from puddling when worked in a wet condition.

Large portions of the valley are so deficient in drainage that if farm work is to be done at all it must be done with the soil in a wet condition. As the vegetable matter decayed or become depleted the soil would puddle more and more until now. after years of the accumulative effect of puddling the soil while doing the farm work, the soil has become so retentive of moisture that it virtually "holds water like a jug." Any one who has farmed this soil since the pioneer days knows that the soil has changed in this particular and that where four horses would pull a gang plow nicely, five or six must now be used.

The only way to restore the proper tilth to the soil is to cease all farm operations when the soil is too wet to work properly—a thing manifestly impractical—and to restore the humus or install a system of tile drainage; restoring the humus is a slow and expensive process, while the latter may be accomplished in a single season. The restoratoin of the humus by application of barn yard manures, the employment of an effective scheme of crop rotation together with a good system of under drainage will make these farms more productive and easier to farm than they were first plowed under.

Besides removing surplus water, drainage improves the soil in a variety of ways.

As previously done by the humus in the virgin soil, tile ventilates the soil by causing it to dry out deeper, thus forming shrinkage cracks thru which the air readily passes. The lines of tile themselves form ventilating flues and after each successive rain the air is driven out of the soil by the water and fresh air is drawn in as the tile removes the water beneath.

Another important and much needed benefit of tile drainage in the Valley is the increased room which it would give plant roots to occupy. By lowering the water table the root system becomes deeper so that instead of farming the immediate surface, as is being done in a water-logged soil, plant food may be drawn from a considerable depth.

Drainage also makes the soil warmer by reducing the cooling effect of evaporation from the surface so that a well drained piece of land will show a temperature of several degrees higher in the spring than an undrained adjacent piece of land. In this way germination is insured at the start and the growing season effectively lengthened. This is not only of great value in the raising of wheat but especially so in the raising of corn which would be an almost assured crop in this northern climate if thoro tile drainage was practiced.

It has been stated by high authorities that if alfalfa and clover could be successfully raised in this section land would double in value and wheat raising would be carried on indefinitely; as is well known, the only thing that prevents their successful growth is too much moisture and the killing effect of frost. The heaving effect of frost takes place in a wet soil and where the soil is underdrained no heaving or harmful effect from frost can take place.

Strange as it may seem drainage not only removes surplus water but it mitigates the effect of dry weather by increasing the available amount of moisture. This it does by increasing the depth of the root system. It is well known that a shallow root system, always due to too much water in the soil, will suffer from drought as soon as the water table recedes and the surface dries up. This condition is very noticeable in many parts of the Valley, where, after a wet spring, the yield is often greatly reduced by a week or two of hot, dry weather—a condition which would not hurt the grain nearly so much if the roots were deeper and better developed.

There are two types of drainage—surface drainage and under drainage. Surface drainage by means of open ditches is often a necessary adjunct to a large system of tile drainage, altho the large tile now made makes open ditches less needed than formerly. The tendency in districts where drainage is well established is to do away with open ditches altogether. Surface ditches are used to form the outlet for tile where the water has to be carried in considerable volume for long distances as the large tile would then be too expensive. In the Valley where natural outlets are few and far between, large ditches built by the county or by the cooperation of the farmers in a drainage district will have to be resorted to. These ditches should, if possible, coincide with the road ditches instead of passing thru the fields as they cut the fields up badly and form breeding places for foul weeds. Ditches must be cleaned out occasionally to remain effective so that in the long run the tile outlets are cheaper and more satisfactory.

These open ditches should be depended upon only as carriers of water from tile systems and to remove spring floods or storm water after excessive rains. Surface drainage can never accomplish the benefits that accrue from under drainage, besides it carries away an enormous amount of fertilizing constituents from manure and other vegetable matter.

The most serious difficulty to meet in draining the Valley is to secure an efficient outlet. This is obviously the first and most important part of any drainage system and without it no system or tile however perfectly installed, can do good work. To secure the desired outlet it may be necessary in some localities to deepen and dredge out small coulees and other natural water courses and to deepen and lengthen surface ditches already installed. Where a group of farmers, needing drainage, will cooperate to secure a common outlet a good one can usually be secured at a cost commensurate with profitable returns.

There are two considerations essential to a good outlet ditch. First, it should be of such capacity that it will not run full except for short periods during a spring thaw or after excessive rains. Second, it should be deep enough to allow tile to discharge into it at sufficient fall, above the average or, if possible, highest water line. This is not always possible and it may be necessary to have the tile empty near the bottom of the ditch in which case a submerged outlet is the result. Altho this condition reduces the efficiency of the system it need not by any means render it impracticable. Only that part of the farm near the ditch and extending to where a horizontal line from the surface of the water in the ditch intersects the grade line of the tile will remain undrained until the water subsides in the ditch.

In flat country like the Valley no attempt should be made to tile, or even cut open ditches, without the aid of a competent drainage surveyor. A preliminary survey should be first made to determine the location of the main and branches and to determine the kind of system to be employed. The advantage of a good survey is that it entirely eliminates guess work and a farmer may know before a spadeful of earth is moved or a single tile is placed in the ground whether or not a practical system can be installed on his place. The fact can not be overemphasized that money spent in making the necessary surveys is a good investment and a guarantee against future disappointment.

One difficulty that has to be contended with when tiling is first commenced in a locality is to secure competent men to do the ditching, for, no matter how accurate the survey, the system will be no better than it is put in by ditchers. Any good man will, under the direction of a competent ditcher, learn to cut a good bottom in a short while so that this difficulty will soon be overcome. It is a good policy never to employ a ditcher who professes to be able to cut a ditch to grade by eye without the aid of a survey. He is either a rogue or does not know his business. A tile ditcher is like a doctor—he buries his mistakes in the ground and will bear watching unless his integrity and ability are assured facts.

The distance apart of drains varies with the condition of the soil, the amount of precipitation, the crops to be raised, and the surface contour. If the water gathers in a series of marshes or sloughs sufficient drainage may often be secured by stringing a line of tile thru these low places. On the other hand if the field is uniformly low and wet a system of parallel drains at regular intervals, known as a gridiron system had best be installed. These questions must be decided by the engineer planning the system.

Th depth of drains is a question of great importance in a new country where the effects of varying depths have not as yet been definitely determined by actual practice. In general the deeper the drains the wider the area drained by them but the slower will be their action after a rain. From two to three feet is usually considered shallow drainage while four feet is considered deep. In a retentive soil like that of parts of the Valley it is best to keep the laterals at a depth varying from two to three and a half feet and shallower drains may be allowed where necessary. The shrinkage cracks due to drying often do not extend to greater depths than that so that while tile will work readily at that depth it may work a great deal slower at an even slightly greater depth.

Many Dakota farmers who would tile as there is insufficient pressure doing so by the prevailing notion that the frost will injure the tile and cause it to crumble in a few years. Tile is known to have been in active service for over half a century, and is still in operation, where frost yearly descended below the tile. The frost will have no harmful effect upon the tile as long as it is working, for, by the time the frost has reached the tile the ground surrounding will have dried out to such an extent that there is practically no expansion due to freezing. It is a good practice, however, in this northern climate to use a hard burnt tile as it will stand the frost better. Very little water passes thru the walls of the average drain til as there is insufficient pressure to force it thru so that nearly all water finds its way into the tile thru the joints.

The inevitable question which every intelligent farmer will ask is—will it pay? To this the reply may be made that tile drainage is an improvement which, if once properly made, is practically permanent and the only expense connected with it is the cost of installation. The field will become at once more productive with a material decrease in the cost of farming due to the drier condition of the land. It makes the farmer practically assured of a good crop whereas before he was entirely dependent on the amount of rainfall. In short the profit of a tile drainage system will be the difference between its cost, plus an interest on the investment, and the value of the increased yield as long as the drains remain in operation.

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One Effect of Teacher Shortage

One of the weak points in the administration of consolidated schools in North Dakota has been the difficulty of securing the right teachers. The consolidated school should offer a wider range of work and work of a higher character than is provided in the one-teacher school. Teachers in consolidated schools should have a knowledge of vocational branches as well as be versed in the standard academic and cultural subjects. It has been no light task to secure the right sort of principals and the best kind of teachers for these schools. Even before the present acute shortage of teachers developed, the success of consolidation was imperiled because of the difficulty of securing teachers. Conditions are far worse at present, when state normal schools report a loss of students amounting to 25, 30, and in some states 50% in their attendance, with thousands of closed schools thruout the country and a great number of schools now in charge of teachers of qualifications below standard. The committee on recommendations of the University of Iowa makes the statement that it can do little to induce young men and women to take up the profession of teaching. Under prevailing conditions, the outlook for the consolidated school is at least temporarily discouraging. Every effort should be made to bring it about that the consolidated school, upon which so much depends in country life, should achieve full success.

Physical Education in the Colleges and Universities

Stanley E. Borleske, Director, Department of Physical Training and Athletics

There is no phase of our present-day system of education which is so thoroly in need of revision as that of physical training. In the grades the majority of schools have a recess once or twice daily and the child is turned loose to get whatever form of exercise he desires and during inclement weather this is very little. It is true that within recent years the schools in the larger cities have provided supervised exercise by regular instructors but this system is by no means universal. In the high schools and colleges, athletics commonly constitute the greater part of the physical training and these have been emphasized from the commercial side to such an extent that a great deal of the benefit that should be derived from athletics is lost in the desire to win. When advertising and consequently winning are the purposes of athletics, the development of a few and the neglect of the majority is the result. This fact was clearly shown by the large number of college men who are found physically deficient when examined for military service.

This is one of the lessons that the war has taught us and as a result there has been since the war a greater tendency to establish in our schools an efficient system of physical training. We now realize that the very foundation for all military training and the thing required most in a soldier is a sound body. A man cannot march, shoot, fight, or think well unless he is physically fit and above all he cannot withstand the hardships of war nor fight off the many diseases so prevalent in war unless his body has been trained and developed. As a matter of fact a great per cent of military training consists of getting the man in proper physical condition for the strenuous work he is to do and during the last war there were scores of men engaged for no other purpose than that of conditioning and training men physically.

A live question at the present time is the one of universal training. A bill is before congress now and circulars pertaining to it are being sent thruout the country. The war department realizes the advantages to be gained by training the college men and therefore is endeavoring to take steps providing for greater work in the schools. The war department has also arranged for systematic competition and trials for men in the service in order to secure candidates for the next Olympic meet and France has adopted a great many of our games and methods for the physical development of the men in her armies. Along this same line is the recommendation of the American Physical Education Society, in session recently with representatives of the larger universities, that physical education be made compulsory in every school in the United States and that a suitable course with proper credits be established and a sufficient personnel engaged to teach it.

But this cannot be done unless proper facilities and an adequate teaching staff are provided. At present most schools are not willing or able to appropriate the necessary funds which would be required to carry on a proper course in physical education. It appears that the only method which will get results is the one of education. Acquaint our citizens with the facts and show them the need for such a course and in time provision will be made for this training. A few comparisons will serve to show up irregularities in our present system. The average man in educational work will readily grant that it is equally important to train a man physically as well as mentally and morally. With this as a basis let us see in what proportion provision is made for training our students physically. Take a school with a faculty numbering fifty. It is usual to have heads of departments in each branch of mental training and also several instructors under these heads of departments. One or several buildings are set aside for each department. For physical education many schools have no buildings or instructors for regular work. Some have use of a building part of the time and an instructor connected with the school looks after whatever form of exercise is most popular. A few schools have athletic fields, gymnasiums equipped and the head of the department with a limited number of instructors. However in those schools in which physical education receives the most attention the teaching staff does not compare favorably with that of any of the departments for mental training in our smaller schools. A school with fifty faculty members will have one faculty member to take care of all the physical education and this ratio obtains even in faculties numbering two or three times this number.

It is true that there are not so many different branches to teach in physical education but provision should be made for at least indoor work and outdoor work. Twenty in a class is considered a maximum number to be properly taught in a recitation class in mental training. By proper organization fifty can be enrolled in a class in physical education, but due to the fact that all students should be enrolled in physical work, whereas all do not take language or history courses, etc., the physical education department should have as many instructors as any other department.

If athletics or recreational sports are in addition to the prescribed physical training course it is necessary to have one or two additional instructors or coaches, depending on what sports are participated in by these teams. For this work it is advisable to have student managers in each branch of sport. By this means the most good is derived as the students feel that they have a voice in controlling their recreation and the coaches are thereby relieved of a great deal of unnecessary work; also this provides splendid training and experience for the students and if properly supervised by the athletic director very good results are obtained. These student managers and two or three faculty members should constitute the athletic board.

The Distribution of North Dakota Plants

O. A. Stevens

This subject has been discussed by the writer in a somewhat extended article to be published shortly in the American Journal of Botany. A brief and less technical statement of the main features may be of interest to many readers.

The geographical location of the state is such that it occupies an area where natural life regions meet. Thus the pioneer botanical manual for the northeastern United States included at the most the eastern part of the state as far west as Bismarck, and none at all in the latest edition. The manuals for the Rocky Mountain states have included the western part of the state. Until the publication of Bergman's "Flora of North Dakota" (Sixth Biennial Report of the Agricultural College Survey) there was no single volume treating the entire state altho the eastern and western manuals each describe from 70% to 90% of the entire number of our flowering plants.

The total number of seed plants and ferns for the state is about 1000, this being scarcely half that of many other states, probably due to lack of diversified conditions such as mountains, lakes and forests. The greatest part of these (about 30%) are common plants of wide distribution such as various species of anemone, buttercup, meadow rue, violet, wood sorrel, nettle, knotweed, plantain, milkweed, bindweed, wild rose, strawberry, plum, cherry, milk vetch, ragweed, goldenrod, aster, sunflower, wormwood, thistle, grasses, rushes and sedges.

About 16% are introduced plants, many of which are bad weeds. Ot these the mustards are probably more prominent than any other group and represented by at least a dozen different kinds (including Frenchweed, peppergrass and false flax). As field weeds sow thistle, Canada thistle, quack grass, wild oats, pigeon grass, and cockles are some of the most important. Other common introduced forms are: mallow, lambsquarters, pigweed, Russian thistle, stickseed, sweet clover, narrow-leaved vetch, dandelion,, prickly lettuce, witch grass and barnyard grass. A number of introduced weeds which are common farther south and east are rare or unknown in North Dakota, such as lance-leaved plantain and the common crab grass.

On account of the very limited amount of woods in the state the woodland flowers are rather limited in both number and abundance. Many of those common to the woods of the eastern states are absent, while others reach their western limit at the Red River Valley or its northern tributaries (except for a few restricted areas such as the Turtle Mountains or Devlis

Lake). Of the latter class are baneberry, columbine, virgin's bower, moonseed, blue cohosh, bloodroot, culver's-root, wild leek, bellworts and nodding wake robin.

Certain of our woodland plants grow farther to the north or in the mountains of the western states. Virginia anemone, touch-me-not, dragon head, certain vetches, sweet coltsfoot and the ostrich fern are some of these.

The common prairie plants of the state belong to the plains region and many of them grow from Mexico to Canada. Some of such wide distribution are: western wall-flower, red false mallow, lead plant, purple prairie clover, white prairie aster, aromatic aster, little sage and skeleton weed. Others which are more closely limited to the western portion of the state go not farther south than Nebraska.

About 11% of the total number are not found farther east than Bismarck, while some 8% reach the Sheyenne river but are less common in the central part of the state than farther west. Quite a number have been collected at only a few places in the extreme western part of the state. Sagebrush, greasewood, Mariposa lily and juniper are examples of these.

Many of these western prairie plants are less widely known than their eastern cousins and are not easily referred to on account of the lack of common names. In early spring some conspicuous ones are found on the hills, such as the phlox which forms moss-like tufts and bears a profusion of white flowers; lugwort, with pretty little blue flowers; Nuttall's violet, a yellow-flowered sort; tufted milk vetch with yellowish flowers and a dense tuft of silvery leaves which crown a long, stout root.

In May the false lupine, a legume with large golden yellow flowers is conspicuous in some places. In early June the narrow-leaved milk vetch produces great masses of yellowish white flowers which form showy spots on the prairie. A small beard-tongue with spikes of deep blue flowers and a borage with bristly foliage and small white flowers are prominent on the hills. On the gentle slopes or flats are two plants of the carrot family with finely cut leaves and large umbels of small yellow flowers.

On the bare clay sides of bad land buttes grows the rabbit brush, a small narrow-leaved shrub with flowers like goldenrod; also a low, tufted evening primrose with large white flowers. The true sagebrush has been collected only at Medora but a closely related, smaller species is prominent on the buttes and on the hillsides west of Mandan.

North Dakota is also a meeting place for quite a few northern and southern plants. Several which belong chiefly to the pine and spruce forest belt that stretches across the greater part of southern Canada, extending into northern Minnesota, Wisconsin, Michigan, Maine and on the mountains farther south in both eastern and western states, are found in the Turtle and Pembina mountains and sometimes in such restricted areas as upon some high northern slopes at Devils Lake and Kathryn. Some of these are the beaked hazel, Seneca snakeroot, bearberry, Canadian buffalo berry, dwarf cornel, one species each of anemone, loco, currant, milfoil and groundsel.

A number of species from the plains region of Kansas, Nebraska and eastern Colorado reach their northern limit in north Dakota. A few have been collected only once or twice in the valleys of the Missouri and Little Missouri rivers or of their tributaries. Others are found occasionally in the portion of the state west and south of the Missouri river or in the southeastern part of the state, especially in the sand hills of Richland, Ransom and Sargent counties. Some of these plants are buffalo bur, large-flowered beard-tongue, two or three species of spurge, our two lupines, yucca, sandbur, buffalo grass, other grasses and plants which are not well known to most people.

Animal Diseases

A. F. Schalk, D. V. M.

The problems concerned in animal diseases are as old as the creation of the dumb beasts, which now occupy a permanent place in our agriculture. In the earlier years and centuries, when the world was new, the soils virgin and the various animal species were fewer in number and followed the dictates of nature more closely, animal diseases were fewer in number and likewise in many respects less complicated. However, with the advent of domestication, with its intensified breeding for special high class types together with forced feeding for special records, there arises an increased number of diseased conditions which have been and are at present proving very troublesome in the way of management and control.

It is not at all difficult for us to appreciate the great economic importance of these most pressing problems of animal diseases when measured in terms of the present day prices of animal products, which constitute a large part of life's necessities in food and clothing. Therefore, every animal life spared and saved from the ravages of disease contributes to the human storehouse to which we all must apply and for which we are all more or less responsible.

How many of the great army of people who are dependent upon animal products stop to consider the magnitude of animal disease? The most of us, however, are more or less familiar with a large number of disease conditions which are common to the human race. Man constitutes only a single species; hence his ailments are relatively few when compared with the almost innumerable disease problems encountered in the various animal species represented in our domesticated animals.

The disturbances of the past five years have literally rocked the economy of the entire commercial world, animal products being no exception. The increased value of all meat and dairy products, which are the result of the chaotic conditions and the decrease in the number of animals thruout the world in proportion to the consumers of animal products, renders the safeguarding of the health and life of live stock of greatest importance in the production of food and clothing for the human race.

At the present time the aggregate value of the various kinds of live stock in the United States amounts to about eight and one half billions of dollars. Of this amount there is approximately one hundred to one hundred and twenty million dollars annual loss from disease, the larger part of which comes in the class of preventable diseases.

In the face of these great losses, we may ask the question, what available means have we at hand to safeguard animal life, and what machinery and equipment are in operation to control and eradicate animal diseases?

Altho many of the maladies which affect our farm animals date back centuries it is only during the last five or six decades that knowledge has been brought to light which enables us to cope with animal diseases in a systematic and scientific manner. Previous to that time man readily knew that certain diseases were contagious or "catching" and that they were transmitted from one animal to another, and even to other flocks and herds, but the majority thought that disease was spread by means of evil spirits or other dark age mysteries, and that it originated spontaneously like an earthquake from the ground or a thunderbolt from the sky.

In 1850 Devaine discovered the microbe which is responsible for anthrax and thereby gave birth to the science of bacteriology and the germ theory of disease. Once micoorganisms were demonstrated and shown to be the cause of disease, one milestone after another was established which served to blaze the way to our present knowledge of disease.

Villman in 1865 succeeded in transmitting tuberculosis from man to animal. Beginning with the germ of chicken cholera discovered by Pasteur in 1880, a number of disease producing germs were described in rapid succession during the ensuing years. It was mainly thru the introduction of the "plating" method with solid culture media by Robert Koch in 1881 that this was made possible. The following year he discovered the tubercle bacillus the master stroke of the century, and the same year Pasteur completed his researches upon swine erysipelas. In 1883 Loeffler and Schultz isolated the bacillus of glanders, which is readily communicable to man from horse, and in 1884 Nicolaier described and demonstrated the germ of tetanus commonly known as lockjaw.

Our own country was not without recognition in the medical world during this epoch-making period, as Salmon and Smith in 1885 laid the foundation upon which rests our present knowledge of vaccine therapy, which has such wide application for the prevention and cure of disease to-day thruout the civilized world for both man and beast.

Again, a couple of years later Salmon and Smith together with Kilborne proved that the blue tick of the south was the carrier of the infectious agent which was responsible for the very destructive Texas fever. Besides their finding being of direct and enormous importance to the cattle industry of the south, it was the first experimental proof that disease was carried by insects and that some diseases can be carried from one animal to another only by means of an intermediary host. Thus the way being shown, it was soon learned that malaria and yellow fever were carried by certain mosquitoes to man. To-day many destructive diseases are known to be transmitted by means of insects, such as fleas, lice, ticks, flies and mosquitoes, and it is highly probable that the transmission of disease by insects is far beyond our present day knowledge.

In the early 90's we find further triumphs in veterinary science when Koch made the first tuberculin for diagnosing tuberculosis and Kelning discovered mallein for testing horses for glanders. These two remarkable diagnostic agents bid fair some day to entirely wipe tuberculosis and glanders from the animal world. Closely associated with the foregoing we find the production of the first diptheria and tetanus antitoxins from the horse by injecting the toxins of the germs into blood of these animals.

For a number of years it was found that no germs could be demonstrated as the cause of certain infectious diseases. In 1898 Loeffler explained such conditions on the basis of "filterable virus," i. e., the organisms were so small that they would pass thru earthen filters. His investigations were made upon foot and mouth disease and at present more than a dozen animal diseases come in this class.

Undoubtedly one of the most outstanding discoveries of the present century is that of anti-hog-cholera serum by Drs. Dorset, McBride and Miles in 1905. By the judicious application of this serum millions of dollars worth of pork is saved to the consuming public annually.

This brief history includes only a few of the real triumphs of veterinary medicine and their direct bearing upon animal diseases and the public health. Let us now consider how these achievements are applied and carried to the live stock of the community, the state and the nation.

Up to 1884 there was no federal aid advanced, and practically no organized effort on the part of the veterinarians and sanitarians to combat and attempt to control animal diseases in our country. During that year an epidemic of pleuropneumonia in cattle was brought to our eastern shores and threatened to overrun the entire country. Intelligent foresight on the part of a few of our more conscientious veterinarians induced congress to lend a helping hand, and it responded by establishing the bureau of animal industry of the U. S. department of agriculture. Within a few years the plague was eradicated from the country, never to return again. Since that time several different outbreaks of foot and mouth disease have developed in the United States, all of which were wiped out within a reasonable time, mainly due to the most excellent work of the bureau in cooperation with the various state sanitary boards.

Under the bureau of animal industry we find the U. S. meat inspection service, which constitutes the largest and greatest piece of veterinary administrative work in the world. Today we find this service maintained at about 800 establishments in 225 cities, employing nearly 2500 employees, a large proportion of whom are veterinarians. These men constitute a loyal, conscientious and efficient force who are constantly guarding the welfare of the public.

Among the other monumental works of the bureau are the method of transmission of the deadly Texas fever by the southern tick, the discovery of anti-hog-cholera serum for the control of hog cholera, the eradication of dourine from horses and the establishment of the tuberculosis-free herd plan, which we believe marks the beginning of the eradication of this dreaded disease from the cattle and swine.

While all of these projects have had their origin in the bureau of animal industry, the various state live stock sanitary boards are taking a very active part in hearty cooperation with the bureau in helping to carry them to a successful termination.

The various state sanitary boards are exerting a tremendous influence in the way of control and eradication of infectious and contagious diseases during the last few years. In addition to the federal cooperative work they do a great amount of independent work, carrying out considerable detail which the bureau could not attempt under its present limits.

Lastly but far from least we come to the role played by the veterinary practitioner. He is the local first aid and sanitarian, and in a large percentage of cases is the only aid available for the live stock owner. In sections of the country where general animal husbandry is practiced extensively he is called upon for an unusually wide range of service. The success and efficiency of such service largely depends upon the spirit and understanding of the owner. Stockmen who are observing and make a thoro study of conditions know only too well that the best blood in the world will not materialize if the health and general care and management of stock are neglected.

It is regrettable to say that far too many people put good money into live stock before they realize the possibilities of animal diseases. These same people are practicing that wise and familiar proverb, "An ounce of prevention is worth a pound of cure," in the inverse order, which always has and always will be the poorest kind of economy.

It is necessary that those who have to bear the responsibility of live stock should familiarize themselves with at least the fundamental principles of animal disease control work. By this I mean stock owners should thoroly acquaint themselves with the various quarantine regulations and learn to respect them and strictly comply with them. Diseases especially those of a spreading nature, are primarily community problems and cannot be combated single-handed. The acme of success in controlling such diseases will be reached only when stockmen come to realize that selfish, individual interests must be laid aside for the time being for the public welfare. They must join hands with their community brethren, under the supervision of competent veterinarians, and bring about some real whole-hearted, public-spirited cooperative teamwork, which is sure to bring the best results.

In Memoriam

The alumni of the college were shocked to hear of the sudden death of Edward Darrow Stewart, '01, on March 13, 1920. So quickly following the death of his wife, which occurred two weeks previously, with whom many of the alumni and college people were so favorably acquainted, the blow seems a double one. Mr. Stewart was born June 22, 1880, near Harwood in Cass county. He attended the city schools of Fargo and later entered the preparatory course at the North Dakota Agricultural College. He graduated creditably from the college with the class of 1901 and returned to the home farm. He spent one year at the University of Wisconsin and in 1909 took charge of the newly organized Langdon sub-experiment station. He did excellent work at the station, being especially interested in the work with Kubanka durum wheat. Other problems which he attacked and upon which he secured satisfactory results were those of deep tillage in the preparation for crops, and the study of grasses and legumes for moist and rather alkaline and clayey conditions. He was later interested in the development of a herd of shorthorn cattle. A short time before his death he accepted the superintendency of the North Dakota demonstration farms and was about to take up his work. In the death of Mr. Stewart the alumni association loses a valued ally and the institution loses an efficient worker. Sympathy is extended to Mr. Stewart's sorrowing parents and relatives.

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A Good Example

In Detroit, Michigan, lessons on safety are given in the city schools. A member of the faculty of the Detroit Normal School, Miss Harriet E. Beard, has in copyrighted manuscript form a course of lessons on safety, covering accident prevention, fire prevention, disease prevention and first aid, for use in all the public schools in Detroit from the kindergarten to the eighth grade. The suggestions given in this course of study and the information presented apply closely to the physical welfare of children and adults. The child learns about accident situations and how to avoid the common dangers. Among the items of instruction are: sharp scissors, knives, broken glass, matches, animal bites and kicks, wrestling on stone sidewalks, danger of pushing and tripping others, fallen wires, jay-walking. carrying umbrellas carelessly, standing on a rocking chair to reach something, skating on thin ice. poison ivy, toy pistols, walking behind a street car, rusty nail wounds, rules of the road, use of safety signs. and many other points of practical importance.

Such instruction brings the work of the school close to welfare. Other schools might well imitate the Detroit schools in giving systematic instruction in safety from the kindergarten up.

Our Two "Reconstructions" — Some Comparisons and Contrasts

Earle D. Ross, Professor of History.

With the prevailing aim in history teaching of studying the past to understand the present, it was natural that during the war comparisons should have been sought between existing conditions and problems and those of our civil war, different in many respects as were these two struggles. Thus our historical journals have given us such studies of the former war, with direct or implied comparisons, as the operation of conscription, the treatment of disloyalty, regulation of newspapers, Lincoln's war critics, the railroads—north and south, internal administrative, trade and relief problems, and the process of demobilization. Whether or not the connections are always obvious enough to make the articles seem "timely" to the general reader, the alert instructor, in "teaching the war," will be eager to utilize the suggestions thus supplied and to trace out other relations for himself.

Teachers confronted with the still more difficult problem, in "bringing up to date" the course in American history, of interpreting the present confused, super-dynamic times, should find enlightening and stabilizing comparisons with those years in our national annals that we have been wont to term the "reconstruction period." While in the narrower meaning of the term these reconstructions may seem very dissimilar, since the former was concerned immediately with the purely domestic problems of the restoration of a section to its place in the union and the present involves world adjustments of national relations, yet in the great internal readjustments and transformations following upon both wars there is, with all due allowance for the different setting of the problems. a striking similarity. In both instances appear dissension between departments of the national government, industrial unrest, inflation and high prices, widespread speculation, a relaxation, more or less, of moral standards with the removal of the war tension: and, perhaps to strain the comparison, as the Centennial furnished an inspiration for moral and intellectual revival in 1876, the Pilgrim Tri-Centennial may give similar impetus in 1920.

But in a far more fundamental sense there is a vital relation between the two eras. In the reconstruction of the seventies we have the definite beginning of the movements which were to create our present-day political, economical and social systems. The decisive ending of the fight-to-the-death grapple of two diametrically opposed civilizations. which for decades past had divided the country along artificial sectional lines, made possible the liberation of the forces that have moulded our existing highly developed nationalism. In the seventies there was being made the transition from our old economy-extensive. exploitative agriculture and small scale industry. with its attendant extreme individualistic philosophy—to the "new industrial revolution" of the eighties. with its consequent corporate activity.

Those days of transition and beginning offer, indeed, most pronounced contrasts to life as we are experiencing it. Individualism was just beginning to give way to corporate action, both in theory and practice; labor was experimenting with national organization, the "embattled farmers" were developing their first class-conscious movement, and the cut-throat competition that in the next decade was to result in combination in industry and transportation was running its ruinous course. We still had our great economic and social panacea of free land. The "last American frontier" was only being entered upon and was in large part stigmatized as the American Sahara. But one transcontinental railroad had been completed, and the range with its picturesque, primitive features had full occupation of the "cow country." Immigration, far from being a problem—except perchance to the sand-lotters—was generally encouraged. Social politics, beneath the notice as above the intelligence of the politician. was left to the "impractical" high-brow and the "fanatical" reformer. Such a time of transition was bound to be one of instability. of confusion and seeming demoralization. All the same, steadily and surely. as we can see now, the change was being made to the new economy, the new society and consequently to the new politics.

Pessimism is today the prevailing note, both of the liberal and of the conservative; one who takes a constructively hopeful view of things runs the risk of having his intelligence seriously questioned. The liberal journals give us weekly warnings that as a people we are in danger of drifting upon the rocks, and the conservative admonish us no less persistently that we are in imminent peril of being blown to smithereens. As for our private morals, from one side we are berated for becoming disgustingly puritanical while from another we are chided for tending toward distressing degeneracy. The statuary "clamor" against "abuse" is provided in almost overwhelming volume and with a conflict of voices that is somewhat disconcerting. Certainly the evidence of discontent is in itself a healthy sign and a reflection of evils which every thoughtful person must recognize, but a hopeless sort of outlook can hardly get us anywhere. To the adolescent mind, in particular, much of the prevailing discussion may well be confusing and disheartening rather than clarifying and stimulating.

Here again, we may get some aid and encouragement from a comparison with the former reconstruction. Students of our history are agreed that the seventies marked the depth of our political and social degradaton, the period when all the forces of evil in our national life seemed to be in the ascendant and the influences of regeneration and progress seemed to be dead or dormant. This earlier reconstruction saw, apparently, materialism enthroned, with politics corrupt, business demoralized, religion stagnant, education ineffective. A "carnival of graft and malfeasance," the "nadir of national disgrace," the "gilded age," the "stagnant period in American idealism" are all characterizations that have been advisedly applied.

Compare with the gloomy pictures that these phrases suggest the alertness of mind and the acuteness of conscience of the present day. Compare with the outworn individualism of that day the present positive attitude toward government as an agency for social and economic betterment, our constructive social reform, our redirecting education, our unifying and revitalizing Christianity. A reprint of editorials from an influential journal founded in 1865 is entitled "Fifty Years of American Idealism." There has been a tremendous growth of idealism in that period and idealism in this country, as evinced by the conditions just cited, has never before been so strong and so sound as it is in this year of grace.

Of course we all recognize that our national salvation and progress consist not merely in making absolute moral and intellectual advances but in advances that are adequate for the demands of the era, the "New World" as the **Atlantic** terms it,—a moral and intellectual progress that is fully commensurate with progress along all other lines in this "scientific age." Whether our constructive idealism has made this *relative* advance is the most serious question that now confronts us. Surely the contemplation of the evils of our past reconstruction, with the realization that many of the same destructive forces, in the same or a different guise, are again with us, should serve as a solemn warning, rather than as a cause for complacency and gratulation. Nevertheless it is at least hopeful that this age is not absolutely the "worst ever," and such comparisons with the past help us better to maintain a firm balance and a true sense of proportion, and furnish, too, a surer basis, for constructive efforts.

After all, the great lesson of our past reconstruction periods that gives the vital message and program for the present is that peace if it has its victories no less renowned than war has also its problems of equal or greater seriousness and that these problems are to be met only by the same spirit of courage, devotion, patriotism, and constructive effort—the same high idealism that carried the armed struggle to a successful issue. Our first great reconstruction, in the broadest sense, was in the "critical period" following the war for national independence, when we made the transition from particularism to national unity; then came a reconstruction following upon the greatest test of that union, when the transition was from sectionalism and individualism to the new nation with its corporate activity; today, after a great world-conflict in which America has championed the common interests of mankind, we are again in the midst of a fundamental reconstruction of our national life. With the lessons of our past reconstructions before us, what shall be the outcome?

A Visit To "Opportunity"

Charles G. Carlson, Supt. Model High School

In the heart of Denver is a school that occupies a unique place in educational circles not only of Colorado but also of the entire Inter-mountain region. This school, known officially as "The Opportunity School," cares for the educational needs of a large group of Denver's school population that the academic system cannot reach. In some ways the school is a protest against old ideals that no longer function. The principal of the school, Miss Griffith, is the inspirational force back of it all; it is her vision and her ability that have made Opportunity what it is.

On first entrance to the building one notices a large bulletin board containing some 30 calls for help. These are the discoveries of students and are posted by them. Over the board is this sign, "Help One Another." This phrase is in keeping with the whole spirit of the school.

The school is in session from nine in the morning until nine in the evening, eleven months a year. The pupils range from youths of ten or twelve to old men and women. There are many different departments, seven of which received aid in 1919 from the federal government under the Smith-Hughes Act. A number of the evening school instructors come from the prominent firms of the city; for instance, the largest firm of architects in Denver has a draftsman at the school, another firm furnishes a teacher of millinery, while an auto concern sends a lecturer on auto mechanics once a week. Even the "Marinello" shop of Denver is represented by a teacher at Opportunity. The equipment, tho not large, is adequate; in case there is need in any line, the business houses of Denver are only too glad to extend assistance. The evening the writer was there a consignment of comptometers had been sent up to the school by a local firm. In the auto repair department the machines are sent in to the school for repairs, the school having but one old Ford.

Possibly the four departments that arouse most interest in the visitors are: the school for citizenship, the beginners' classes, the beauty parlor and the gas engine laboratory. The classes in citizenship are composed of foreigners and to date (1919) over 1,800 such persons have secured naturalization papers following instruction in these classes. The beginners' classes are composed of adults, some of them perilously near the three score and ten mark, who are learning to read and write. The beauty parlor is for young women who desire to become experts in massage, switch making and other related arts. When Miss Griffith instituted this "beauty class" she was severely criticised but her critics are now quite mute. The auto department and the commercial seem to be the most popular in the school. It was interesting to note that in the tractor-operating division of the school there were six women, wives of tubercular husbands, taking instruction.

One department that the visitor at the school does not quickly forget is the soup kitchen where about 200 pupils are fed free each evening. Miss Griffith found that many of her pupils came to night school hungry and were consequently handicapped in their lessons—the result was soup. The soup kitchen does not cost the school anything for the reason that a certain woman in Denver has this as her private charity. Miss Griffith thinks that if arithmetic is free, why shouldn't soup be free also? A novel feature of the soup kitchen is the verbal examples such as these on the walls: "It is I," "You and I are going," It is he," etc., the pupils thus absorbing grammar at the same time as they eat the soup.

This school has now (1919) been in operation three years and the reason for its splendid success, aside from the influence of Miss Griffith, is that it connects up with the work-a-day life of the pupils. From 4,000 to 5,000 pupils, not counting those who stay but three weeks, find instruction here yearly. During the war the school did some very effective work training over 800 radio and buzzer men and 60 tank men for the service.

There has, of course, been opposition to Miss Griffith's work from the "classical elements" of Denver but they are now in full retreat. It is true that the school is not conducted on the lock-step, states-prison order so dear to some academic hearts, nevertheless, the school produces results. There is freedom at Opportunity for even a boy who is not a member of the school may come in and "loaf" and Miss Griffith justifies this on the ground that "there are worse places in Denver where he can spend his time." Miss Griffith believes most thoroly in part-time and continuation schools. She thinks that all boys up to twenty ought to be in school or at work and the minute a boy quits a job he should be forced to resume school until such time as he finds another place. The impressions that the visitor carries away from Opportunity are pleasant indeed.

The Rusts — A Highly Specialized Group of Parasitic Plants

Wanda Weniger, Plant Pathologist

When plant diseases are mentioned to the grain grower of North Dakota, his first thought is usually of wheat rust; and any reference to a plant pathologist not infrequently implies that such an individual knows about the black stem rust of wheat.

Wheat rust, or black stem rust of wheat, is without a doubt the most destructive fungous disease of the wheat plant, altho it is by no means the only trouble with which the plant pathologist must deal. Its ravages are all too well known to the wheat grower. But the nature of the rust, the cause of the disease, is still unknown to many growers, and a puzzle to those farmers who have learned a little about it. Precautions against rusts or any other plant diseases cannot be expected until these diseases are better understood. It is difficult for some to conceive that millions of spores are produced on each plant and that these may cling to or invade the seed as well as the soil. Seed grain cannot be tested for rust; the grower must come to realize that the standing crop cannot be treated. Rust resistant varieties are being perfected to aid materially in reducing loss to wheat crops of the future.

What, then, is the nature of these plant parasites, the rusts? Not only the grower, but even the student of botany has difficulty in comprehending the life history of the rust fungus. Rusts are marked among plant disease organisms by their high degree of specialization. Plant diseases are caused by the attack of very minute parasitic plants, notably smuts, rusts and mildews. All spread by means of spores so small as to be seen only with the aid of a microscope. They are carried by the wind for miles; but they will sprout if moist, and if on the plant to which they are adapted, they infect it and begin forming more spores. Millions of spores are produced on one wheat plant attacked by the rust fungus. There are several thousand spores in each slit or pustule appearing on a wheat stem. The pustules are about one-fifth inch long, and countless pustules appear in varieties of wheat susceptible to the attack of the fungus. Millions of spores are produced in the smut balls where the grain should be produced — 8,000,000 spores in a bunted grain of wheat.

Unlike the smuts, rusts are specialized parasites in that they are able to produce several kinds of spores according to circumstances. In the case of the wheat rust there are red and also black spores produced on the wheat plant itself. The red spores formed in spring and early summer are crowded out by the black spores as soon as the wheat begins to mature. In addition, there is a third kind of spore of orange color produced on the barberry leaf. The black spore must overwinter and germinate in spring to infect the barberry bush before the wheat plant is infected. This heteroecious condition, in which two plants are necessary for the completion of the life history of one organism, is not peculiar to the wheat rust fungus alone.

Difficulty has long been experienced in appreciating the relation of the barberry to the wheat plant. Even the pollen of the flower of the barberry bush has been accredited with the damage done to the wheat plant. When once the plant pathologist can impress upon the grower the fact that the barberry is a host for the fungus which causes the pustules on wheat stems, the reason for the eradication of the harmful host is understood. There are many other rusts that must have two different host plants for their different kinds of spores. Again, there are rusts having two, three, or four kinds of spores, all living on one host. Flax rust with its orange spore pustules on leaves and stems and its later purplish-black spore pustules on more mature stems, is a good type of autoecious rust. The wild rose rust, with two kinds of spores, lives only on the rose. It has nothing to do with wheat rust, as has sometimes been thought.

Long years of investigation have revealed many interesting combinations in rust life histories. Just as the wheat rust goes to the barberry bush, the crown rust of oats goes to the buckthorn, the rust on gooseberry goes to a sedge, the rust on stinging nettle goes to a sedge, dandelion rust goes to a sedge. And still more queer combinations: the rust of the pea infects a species of spurge, corn rust goes to **Oxalis,** plum rust goes to **Anemone,** the rust on tall reed grass goes to sour dock, red cedar rust goes to the hawthorn, another red cedar rust goes to the apple, currant rust spores attack the white pine, a rust on willow goes to the balsam fir, one of the poplar rusts goes to Douglas fir, the *Rhododendron* rust attacks the hemlock. None of these life histories are any more peculiar than that of the wheat rust fungus. Yet to the greater number of people who must suffer from losses caused by the rust fungus, they will remain a puzzling problem.

Analogous to the wheat rust situation considered economically, is the white pine blister rust, which has commanded nation wide attention during recent years. The orange spores found in the cluster cups of the barberry leaf are here comparable to the yellow spores produced in the blisters which do the damage to the pine tree trunks and branches. The damage to the currant bushes is slight in this case, altho the spores produced on the leaves are the ones comparable to the spores doing the damage on the wheat plant in the case of the wheat rust fungus. In order to save the forests of white pine, campaigns to eradicate the currants were launched and restrictions placed on the importation of diseased stock.

A further complexity with respect to the life histories of rust fungi lies in the physiological specialization of several of their number, among which are the grain rusts. One rust assumes a slightly different behavior toward various grains, and altho microscopically alike, these strains of the same species of rust are physiologically different. Fig wasps have lived on figs so long that they do not live upon any other plant. Wheat rust has adapted itself to the wheat plant to such an extent that it does not attack oats or rye, and barley only slightly. Among the cereal rusts, four strains of the rust fungus have been separated out, all structurally alike, but each attacking only certain cereals. The wheat rust fungus attacks wheat, barley and not rye or oats; the rye rust fungus attacks rye and barley, not wheat or oats; the oat rust fungus attacks oats, only rarely wheat, rye or barley; and the barley rust fungus attacks barley, wheat and rye, not oats. These rusts are identical even in the barberry stage, differing only in their behavior. Similarly, the bacterium causing tuberculosis presents comparable peculiarities. The kind infecting poultry is harmless to human beings, whereas the human and bovine tuberculosis will not harm poultry.

North Dakota harbors a great many of the less economic forms, as well as the destructive cereal rusts.

Of the 1,300 odd species of rusts known to the world, this state claims at the present time about 125 recorded species. This number will doubtless increase somewhat from time to time as a more thoro survey is made. The many strange alliances of hosts for the different species make them an interesting group for study and collection.

Vocational Education

C. E. Cavett, State Director of Vocational Education

Vocational education is neither a fad nor a fancy. It is a fact. The work has been carried on in the past by philanthropists, a few schools of technology, opportunity schools and the trade unions. These institutions have done a fine work but their output has not been sufficient to meet the demand. The result has been that a majority of people have launched upon their life work without any special training.

On the other hand, the public school has devoted the greater part of its time preparing the pupils to qualify for professional courses. In order to qualify for any line of work and to become an intelligent citizen it is necessary to secure a certain amount of fundamental knowledge. Our present school system has excelled in giving this fundamental knowledge and in the preparation for professional courses. The time has come, however, when it is necessary to give more time to training citizens for useful occupations.

According to statistics, in our own state, out of every one hundred pupils only eleven complete the high school course. To the eighty-nine the vocational courses and opportunity schools are a boon. If we are to continue in supremacy as an agricultural, commercial and manufacturing nation, we must rejuvenate our courses and prepare all of our children to qualify in the several walks of life. There is now no west to which the young man may go and file on his homestead of excellent agricultural land. The natural resources have been exploited. It is now time to conserve and replenish the same. The coal, iron and oil are fast following the vast forests of this country and these natural products will be as scarce within a few years as lumber is today, unless we can arouse public sentiment to make the right use of the same. All of the above facts need no argument; they are self-evident.

These are a few of the reasons why the federal and state governments have launched upon a crusade of vocational education. The laws passed by the federal and state governments are printed in the Plan for Vocational Education in North Dakota, which has been issued recently. The state of North Dakota has arranged thru its officers to take advantage of the aid offered by the federal government. Three distinct lines of vocational work have been established. At present the work is being developed very rapidly in agriculture, domestic science and trade and industries. In each of these lines, several types of schools are established. All-day schools, part-time schools, continuation schools and evening schools are encouraged.

The object of the vocational education is to encourage students to select and follow some useful occupation. It is conceded by all who have given the matter any thought, that a general education is very useful and prepares one to learn and follow his chosen vocation more intelligently. However, it does not afford the technical training which is necessary in industrial efficiency.

In the all-day school, special attention is given to the technical knowledge which will be useful in a trade as well as to general education which will prepare one for citizenship. In this school the student is required to give one-half of his time to general education. English, mathematics, science, history, etc., are required. The other half of his time is to be devoted to the vocational instruction. One fourth of the day will be given to technical instruction and the other fourth to a practical application of the same, thru the project method.

It is the object of the continuation school to provide an opportunity for students who find it necessary to quit school before a course has been completed, to attend at least a part of the day and secure a line of instruction which will assist them in their daily vocations.

The part-time school affords an opportunity to students over sixteen years of age who have quit school entirely, to spend the dull season in further preparation for their chosen vocations. There are dull seasons in nearly all lines of work. During this season, the students can improve themselves so as to command better wages as well as better positions.

The evening course offers a similar line of work which may be pursued after working hours. The students will be expected to pursue a line of work which can readily be applied to the vocation which they are following or preparing to follow. They will also be expected to study English, American government, penmanship and kindred subjects. The product of all courses should be better citizens.

All of these courses prepare students for a more useful life and enable them to secure a training which will be beneficial both to themselves and to the public. It should be remembered that the public school is not created for children alone; its doors should be opened to all classes of people at all times. Each school district should plan to render a service to the entire community thru the all-day schools, evening schools and dull season courses. This arrangement will apply to city, village and consolidated schools.

A director of vocational education was appointed by the board of administration last year and plans have been developed to offer an opportunity to all of the schools to establish vocational courses. A number of districts have already availed themselves of the privilege. Several new ones have made application to be classified for the ensuing year.

In order to qualify as a vocational school it is essential to secure a proper teacher. Manual training has failed to quite an extent because the work has been carried on in a limited way by poorly prepared teachers. Care will be taken to avoid this mistake in the vocational work. In order to qualify for an agricultural school, the district will be required to secure a graduate of an agricultural college who has a good personality, good judgment, ability to lead and who has had at least two years practical experience on the farm. The teacher must know his job and be willing to do it. The same principle will apply to the trade and industrial work as well as to domestic science.

The agricultural college has been designated as the teacher training institution in the three lines of work. Courses have been established at the college which will accommodate students ranging in educational standards from high school to college graduates. The college has also planned to establish local study center work which will afford teachers at work an opportunity to pursue one or two courses during the year. By attending the regular summer school at the college the teacher will be able to secure a degree within a few years without losing any time as a teacher.

A large number of the teachers plan to enroll this year and begin to train as teachers in these lines of work. The good vocational teacher will be able to secure from fifty per cent to one hundred per cent more wages. This is the largest opportunity for teachers in the school work.

The industrial supremacy of this nation is dependent on the efficiency of the individual citizen. We cannot hope to maintain our present position unless we begin at once to give technical training to all of the citizens. The Smith-Hughes law is one of the best laws ever passed by our congress. It provides for vocational training for all classes of citizens. Every district in the state should plan to offer dull season courses and evening schools. They should also plan to establish all-day schools under the provisions of the federal and state laws at the earliest possible date.

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Attendance at Agricultural Colleges

Some years ago, under the cry of back to the land, young men from cities began going to agricultural colleges; their enthusiasm, however, waned, with a resultant slump in attendance. To the extent to which agricultural colleges are identified with practical agriculture it is to be expected that attendance will be influenced by the prosperity of farming and by the counter attractions offered in commercial fields. The war, of course, vastly enlarged the profit-taking of trade and commerce and many have turned toward commercial careers. The farm, on the other hand, has experienced no such boom in financial attractiveness. Fifteen-cent wool and $100 suits are facts that influence, perhaps subconsciously, the mental processes of young people.

Educating Girls

The suffrage amendment will influence the theory of woman's education. Classical materials and laboratory utilities can no longer be regarded as sufficing for the woman graduate. She will now be expected to go into studies pertaining to the system of society—its characteristics and administration. The failure of men to run the world properly will prove a strong incentive to the young women in the sociology class.

The Origin of the Earth

Adelbert L. Leathers, Associate Professor of Zoology and Physiology

We are all more or less interested in the earth perforce, but just how much of our thinking depends upon a particular theory of its origin few of us realize. In this connection it is quite significant that some of our most ancient literature gives us a glimpse of the prevailing notions of those far-off days. To most of us some phase of the Laplacean hypothesis, or as it is more commonly spoken of, the nebular hypothesis, sounds quite modern. It is the purpose of this note to call attention to a new theory by Dr. T. C. Chamberlin of the department of geology, University of Chicago, which has recently been published by the University of Chicago Press under the title of "The Origin of the Earth."

The most striking fact emphasized by this new theory is the importance of the application of newly acquired knowledge to old problems. About a century ago the nebular hypothesis was the most complete and satisfactory theory then known, and by force of its completeness has recommended itself to the popular mind, so that now few people know that it was but one of a group of similar theories. Because of its general acceptance, Chamberlin refers constantly to its fundamental premises by way of contrast.

One of the most crucial tests to which the nebular hypothesis has been subjected is that of a new theory of gases, namely, the kinetic theory. In Laplace's day a different theory probably prevailed. The one current during the latter part of his life regarded the molecule as the nucleus of concentric spheres of alternate attraction and repulsion. Thus, molecules of a gas when widely separated attract each other; when brought nearer, the spheres of repulsion come into action, and the molecules are held apart, thus giving the elasticity commonly recognized in gases. But when molecules are forced somewhat nearer together, their inner spheres, the spheres of attraction, come in contact, and liquids and solids result. The kinetic theory of gases, on the other hand, conceives of the molecules as being controlled by one uniform attractive force, namely, that which we call gravitation. The force that makes the gas elastic, according to this theory, is the constant motion of its molecules which are always colliding and recoiling. According to one estimate, the number of collisions in the atmosphere about us is several billions per second, varying with the elevation and the resulting variation in gravity. The molecules are commonly assumed to be perfectly elastic, and when once started in motion continue as the result of collisions. The recoil may result from one or more molecules striking on the same side of a third molecule, resulting in this particular molecule accumulating momentum while another loses momentum. This conception of a gas is very different from that of the Laplacean hypothesis, especially when we get to the outer limits of the atmosphere where the more crucial test o fthe theory from the cosmogonic standpoint is seen. As the pull of gravity diminishes with distance there is a sphere outside the earth over which the earth and adjoining planets compete for supremacy. According to the Laplacean theory of gases each planet would hold a mass of gas separate and distinct from that of other planets from the beginning of its formation. According to the kinetic theory of gases there is a constant gain and loss of molecules due to the movements of the planets. As an example, if the earth, after establishing an equilibrium in its attraction for gases with Mars, is subjected to the combined attraction of Jupiter and Mars, this equilibrium is disturbed, and the earth will lose a certain outer shell of its atmosphere. The same applies to the solar system and adjoining systems. The sun holds the planets under its control together with a certain envelope of gas, but in its outer sphere of control are nebulae and gases that may be captured from the solar system by two other systems combining their attractive force.

However impractical theories may seem to the matter-of-fact mind we already hear in the public press that some of our more adventuresome airplane men are seeking notoriety by suggesting a trip to Mars. But between the earth and Mars are at least one hundred and forty one million miles of space, concerning which theoretical considerations constitute the most substantial foundation that we have, conditioning such a venture.

Another no less interesting application of newer facts derived chiefly from the astronomical field shows equally great defects in the nebular hypothesis. This group of facts is enumerated by the author under the heads of "Vestiges of the Sun" and "Cosmogonic States." They consist of clues or vestiges that must have preceded the present. In other words, it is the attempt to read backwards the history recorded in the planets and their satellites. One type of vestige is that found in the relative momentum of the sun and the planets. If the sun and the planets were derived from the same whirling mass of nebula there should be some relation between the rotation of the sun on its own axis and that of the planets revolving about it. Laplace's theory, as well as all similar theories, consider that the mass of nebula which formed the solar system was rotating as a whole and that the speed of rotation has increased as the mass condensed, thus retaining the "moment" of momentum according to mechanical laws. If the planets were the result of the shrinking of this mass, their rate of rotation around the sun should show the speed of the mass when as large as the orbit of that planet. The actual velocity of the sun is only about one-half of one per cent what it should be according to this mechanical law, as interpreted in relation to Mercury, the nearest planet. Other vestiges were found in the rotation of satellites about the sun. According to the Laplacean hypothesis, these were formed as the result of centrifugal action. The centrifugal theory demands that all satellite rings revolve in the same direction as their principals, and that the inner ring revolves in less time than the outer. The same principle would, of course, apply to the satellites, which according to the Laplacean theory, were formed from these rings. But Phobos, the inner satellite of Mars, revolves around that planet three times while the planet rotates once. Another class of discrepancies is illustrated by the planets, Saturn and Jupiter, the former having one and the latter two satellites that revolve in a retrograde direction. The strongest supporters of the nebular hypothesis in times past emphasized the fact that all of the satellites revolved in the same direction, and were quick to see the seriousness of a single exception to this fundamental uniformity.

The objection described above together with others equally convincing but involving more abstruse reasoning led to a discontent with the Laplacean theory as a whole. But as a great mass of our reasoning about the earth, especially with regard to its internal condition, age, arrangement of fossils, volcanic action, formation of continental and oceanic areas, occurrence of ice ages, and many other facts, are dependent upon a consistent theory of its origin, it became desirable to revise the Laplacean theory or discover a better one. The latter choice was apparently the only logical course. An examination of the solar system revealed the fact that the orbits of the planets are not far (about seven degrees) from discoidal in arrangement. It was discovered that the sun contained 741|745 of the mass of the solar system, but carries less than 2 per cent of its revolutionary momentum. The fact also noted that certain satellites revolve in a direction contrary to expectation and to the common run of satellites calls for explanation. To the mind of the author of our newer theory this suggested that two forces were involved in the formation of the solar system. He refers to its as of bi-parental origin. Contrasted to this theory is the Laplacean hypothesis which considers the mass of nebulae self-sufficient, granting its fundamental postulates, i.e., a mass of nebulae with a whirling motion. This theory represents a mono-parental type of origin. If we seek the parents of the planets we find the sun so large that only 1-745 part of its substance would be sufficient to supply material for the planets even if they sprang into existence with their present volume. The remaining central mass would be sufficiently large to hold by its gravity or attractive force, all the planets as now arranged. The sun, then, may be called the chief parent of the system.

But why do we need another parent? The sun by itself would not tend to give up any of its substance to the formation of planets. If we abandon the formation of planets as a by-product of the process of contraction of a hypothetical mass of nebula to the sun's present dimensions, we must need some other decentralizing process. To accomplish this step, the other parent is necessary. This parent becomes such by virtue of its attractive force. Hence a large star may have approached the sun slightly or a smaller one may have come much nearer. What then is the effect of the attractive force upon the sun? There are two zones, one on each side of the sun's equator where great explosive activity is going on. "At presentthe sun is almost daily shooting forth gas-belts of vast dimensions and often at such velocity that they rise many thousands of kilometers above its glowing surface." These belts are thrown off as the result of explosions due to internal conditions, but the volume of the explosions and the distance to which the gaseous material of the surface may be thrown are dependent upon the attraction of another powerful star. We know that the attraction of the moon exercises such an effect upon the earth as to make the water on the side towards it, as well as that on the opposite side, reach a higher level and sweep arond the earth as tidal waves. The attraction of the hypothetical parent caused similar tides in the sun, which had the effect of directing and causing explosions by lessening the pressure in a particular place, thus producing a path of least resistance. When such an explosion hurls a mass of gaseous substance into the sun's atmosphere, its final destination will depend upon its momentum and the attractive force aiding its movement. That it is possible for these gas-belts to become detached from the sun is made quite plausible by announced direct observations by expert observers of the present-day activity of the sun. That the attractive force caused by an unusually near approach of the star would both supplement the violence of the eruption and aid the escape of the eruptive substance by counteracting the pull of the sun's gravity is easily understood. When all possible alterations are considered substances belched forth would be attracted by the neighboring body in varying degrees depending upon the elevation obtained. (1) Some would rise up, be somewhat deflected by the counter-attraction, but eventually fall back to the surface of the sun. (2) Other belches of gas would go higher and in falling back, would just miss striking the sun's surface because of a greater deflection, with the result that they would revolve about the sun in a very eliptical orbit. (3) Other gas-belts would leave with such force as to entirely. escape the sun's control and go over into that of a near-by star. It is, therefore, sufficient to assume that a star either of greater magnitude or with an orbit closely approaching the sun passed by in a plane making a small angle with the plane of the sun's equator. As the star first approached it set up disturbances of an explosive nature but with the result that the exploded material fell back into the sun. But when the star passed over the zone of greatest explosive activity, being at this time nearer the sun (it being assumed that it is just over the sun's equator at the point of its nearest approach) as well as over its most explosive area, it caused the maximum explosions, with the result that the nuclei of Neptune and Uranus were erupted simultaneously. In this line of reasoning it is assumed that the same sort of tidal disturbance observed on the earth would be effective in exciting and directing these explosions and that they would take place on opposite sides of the sun at the same time. As the star continued its course and passed over the other zone of greatest explosive activity, two more of the beginnings of the major planets were erupted, namely Saturn and Jupiter. Now as the star receded. and its attraction became more oblique the planetoids were formed and then the minor planets, two by two. The gradual gradation in size is explained in part by the decrease of explosive material in the sun, in part by the receding of the star, and in part by the amount of subsequent growth This latter consideration is of great importance, for it is clear that the outer planets have the larger orbits.

They are bigger than the nearer planets and hence attract more strongly floating material in the space under their control. As a result it is reasonable to assume that their growth has been most rapid. Hence the size at the time of their origin is entirely hypothetical.

In discussing the method by which a gas-belt escapes the gravity of the sun sufficiently to fall into an orbit about it instead of falling back into its surface, it was stated that, that orbit would be eliptical. Whence, then, came the sub-circular orbits of the planets as we now find them? On a clear evening it is not exceptional for one to witness shooting-stars, as they are called. These are meteorites, that owe their light to combustion caused by their suddenly striking our atmosphere. Some of these substances are of volatile and combustible hydro-carbon, while others and by far the greater number are of very combustible material or metallic substances. These meteorites are constantly coming into the path of the earth's orbit and are gradually being captured. In the same way, all the planets have been feeding upon meteorites that came within their range, but the meteorites were moving in orbits of their own, and this motion, when overcome by the superior pull of the planet, exerts its influence, no matter how small it may be, upon the motion of that planet. In this way, the eliptical nature of the orbit has been materially changed, and tends to approach the circular. How large the original nucleus of the planet was, and how much of its bulk is due to additions in the form of meteorites, is. at present. not easily answered. For the earth. it is conceivable that this process has gone on for a long time. And here the theory depends upon geological data for its general conclusions. Thus we see the abandonment of the mono-parental solar system postulated by the nebular hypothesis for the bi-parental theory of Chamberlin does not invalidate the postulates of geology, but rather supplements and clarifies many of the problems encountered by that science. According to the nebular hypothesis, the solar system is gradually cooling off, and each constituent part is shrinking. According to the newer theory, the entire solar system is being constantly added to. The total radiation of the sun, according to this theory, may be maintained, or even increased, for untold ages, depending upon the meteoritic material that it encounters in its motion thru space. In a similar fashion the earth is constantly adding to its substance, and the pressure resulting from this accumulation produces heat, with the result that "the earth appears to have a long and happy life still before it."

The Influence of Temperature on the Infecting Power of the Wilt Fungus and the Resistance of Flax Plants

Theodore E. Stoa, Assistant Agronomist

Wilt in flax is a disease brought on by a fungus called *Fusarium lini*. It is the most destructive of the diseases affecting the flax crop. Wherever the crop is grown wilt sooner or later will make its appearance and once present in the soil the fungus remains for several years. Later flax crops grown on this land are subject to wilt infection. With weeds, wilt is responsible for the continued reduction in our flax acreage. These two factors challenge the permanence of the crop in this country and the industries depending on it.

Variations in the Amount of Wilt

General observations indicate that flax wilt is more dstructive in some years than others. This suggests either that the infecting power of the wilt fungus is influenced by climatic conditions or that resistance in the flax plant is a variable factor.

Analysis of certain temperature data for three years when wilt was particularly destructive, and three other years when wilt was less severe, has been made with such a correlation study in mind. The analysis establishes what general observations indicate. Flax wilt is associated with high temperatures. High temperatures increase the infecting power of the wilt fungus. Low temperatures, or cool seasons, are not favorable to wilt infection. The fungus does not thrive under these conditions. On the other hand, flax plants are more vigorous and productive under low temperature. A warm season is not favorable to the crop.

Tisdale has demonstrated the effect of temperature in influencing the infecting power of the wilt fungus. His observations indicate that infection ceases when the soil temperature is down to 42° Fahr. The optimum temperature for infection he has shown to be about 80°.

Plants recover from disease infection when favored with optimum conditions. Johnson and Hartman, studying the influence of soil environment on root rot of tobacco, observed that a low soil temperature favored infection from the root rot fungus. Under high temperature root rot infection was less. The high temperature was otherwise more favorable to the growth of the tobacco plant, and an infected plant would recover when favored with optimum temperature. Flax plants infected with wilt tend to recover under favorable conditions.

Temperature of Soil

In general the temperature of our soil is low, and only rarely is the optimum temperature for wilt infection reached. As an average of 7 years' data at Fargo the mid-day soil temperature at the depth of one inch, for May, was equal to 56.6° Fahr; for June, 67°, and for July 74.1°. At the depth of 3 inches these temperatures were 50.8°, 61.9° and 67.9° respectively. Since soil temperature is directly influenced by air temperature, the temperature of the soil would be considerably less during the night. It is obvious, therefore, that the cool season is particularly unfavorable to the wilt fungus. During our short hot seasons the temperature is more near the optimum temperature favorable to wilt infection.

Environmental Influence on Plants

A living plant is a highly organized structure. Chemically it is complex and responsive. Like the wilt fungus the flax has an optimum temperature for growth and development. Under this temperature the plant is brought to its highest efficiency. Bialoblocki in 1871 observed that this temperature for the flax plant was about 45°. He observed also that that part of the plant above the ground developed favorably even with a soil temperature up to 60°. He noted, however, that under these higher temperatures, root development was considerably reduced. Since the wilt fungus makes its entrance into plants largely thru the roots the reduction in root development appears significant. A weakened and stunted root would be more subject to infection than one vigorous and hardy—the plant's resistance to disease not being developed. High temperatures encourage wilt infection in flax; they increase the susceptibility of the plant.

What Determines Resistance to Wilt?

With our limited information a positive answer to this question is impossible. Other answers are mainly theories based on related facts. From evidence at hand we may suggest this explanation.

Resistance to diseases in plants is an inheritable character. As such, resistance is already present in the germ plasm. Varieties have this character in varying degree. Plants within a purebred variety, or strain, possess similar inheritance. As a highly organized and responsive chemical structure, the plant responds readily to environment. Changes in temperature hasten or retard chemical changes. The chemical composition of the plant is thus changed. Its physical structure is modified. The plant's behavior and ability to resist or take infection is influenced by these chemical and physical changes.

A general effect of low temperature is to retard the development of root hairs. This condition is further associated with denser and more cuticularized cell walls. If micro-chemical observations indicate that these conditions also hold true in flax plants, they will explain, in part, why wilt is less severe, under low temperature and increases with the temperature. Since infection largely takes place thru the root hairs or tender portions of the root, a less number of root hairs would reduce the points of entrance. Harder and less permeable cell walls would make entrance more difficult. The cumulative effect would be to discourage infection. The susceptibility of the plant would be less—its resistance greater.

The relationship between the infection power of an organism such as *Fusarium lini* and the degree of resistance in its host plant is a matter of opinion. From our knowledge of the wilt fungus and the flax plant it does not appear fair to ascribe conditions favorable to the infecting power of the fungus and not recognize that these conditions are responsible for variations resulting in the plant. Studies, therefore, into the physiology of plants are of increasing importance. To know the "why and wherefore" in the behavior of plants under constantly fluctuating environment is to find an explanation for many phenomena in plant life. The infecting power of the wilt fungus and the resistance in flax plants appear inversely related. Conditions making for the optimum infecting power of the fungus are, in general, conditions that appear to lessen the resistance of the flax plant.

VISUAL INSTRUCTION

A. P. Hollis, of the visual instruction service, has recently returned from Madison, Wisconsin, where he was invited to take part on the program of the newly organized national academy of visual instruction. Mr. Hollis reports a very interesting convention with representatives of visual instruction in attendance from as far south as South Carolina and as far north as North Dakota. The president of the academy is Dr. W. H. Dudley, who organized the first bureau of visual instruction in a state university in this country.

The academy appointed a number of working committees, who have been assigned various problems in connection with the educational uses of slides and films. Among the most important of these committees are those on research and legislation. Mr. Hollis assisted in drawing up the resolutions and he states that the association voted to present to the legislative committee two which he regards as especially important. One petitions congress to act favorably upon a pending bill appropriating a considerable sum of money for the production and distribution of educational films to be apportioned among the various states for distribution, and a second petitions the United States department of agriculture to make a definite ruling permitting Smith-Lever funds to be used in extension departments for the production and distribution of films and slides. Another resolution requests the federal vocational board to make a similar ruling for the Smith-Hughes schools.

One of the most interesting addresses was delivered by W. C. Crosby, director, community service, state department of education, North Carolina. Mr. Crosby was accompanied by a lady assistant, and both of them told in a very interesting manner of the action of the state of North Coralina in appropriating $25,000 annually for the purchase and exhibit in the rural districts of the state of educational and entertaining moving pictures. The state has furnished twenty Delco light units and a number of reels, and twenty counties are now being served, with an average attendance of 40,000 a month.

Governor Philipp gave the principal address at the banquet and the association was also addressed by United States Commissioner Claxton, President Birge of the University of Wisconsin and Dr. G. E. Condra, director of state conservation and survey, University of Nebraska. Dr. Condra has taken a large number of moving pictures of state industrial and educational institutions and makes very effective use of them in connection with his campaigns and surveys. The United States government was also represented by Mr. G. W. Perkins, who is in charge of the moving pictures distributed by the United States department of agriculture. The department uses the North Dakota Agricultural College as its center of distribution in North Dakota, and the United States bureau of education will also furnish the visual instruction department at Fargo with a large shipment of films for distribution to the schools of the state.

The program lasted three days and was interspersed with a liberal number of the best type of educational films so far produced. One of the big problems constantly mentioned during the program was the organization of a clearing house committee under the auspices of the national academy for the listing of educational material of the whole country, and making these lists available for the various educational institutions. The organization of this national academy, Mr. Hollis says, is the most promising movement yet made to give slides and moving pictures the place they deserve for the purpose of science. Mr. Hollis reports that, as far as he was able to observe, at Ames, Iowa, is the only other purely agricultural college in the country that has a department as well equipped and furnishing as extensive service as that of the visual instruction service at the North Dakota Agricultural College. This department has just issued a new classified list of the slides and films it has for distribution to the schools and clubs of the state. It will be sent on request.

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The Junior College

Registration at universities in several of the more populous states is now so large that there is prospect of serious congestion within a few years. This fall the University of Illinois enrolled 8,000 students. The junior college has been proposed as a means of giving college education to students in their home cities. Such institution would give part of a college course in the high school. One of the city high schools of Los Angeles offers courses of college grade. There are problems to be worked out in the establishment of the junior college, but at the present rate of increase of attendance upon state colleges and universities the number of students will soon pass beyond the physical limits of these institutions.

Vocational Guidance in Our High Schools

Charles G. Carlson

Industries come and go—so do trades and professions. The candlemaker of years ago went his way and in his place we have electric light plants. There is no longer a cobbler in every block; his place has been taken by the shoe hospital. "In the eternal progression of things in this world, it is but a law of nature that that which no longer serves a legitimate purpose be discarded." So with the disappearance of given trades and professions come other trades and professions to take their places. Each generation discards and accepts—discards that which no longer gives full service and accepts that which is more promising. Witness, for instance, the passing of the horse and the advent of the motor truck and the gas tractor.

There is nothing new about the subject of vocational guidance. When the elder Franklin took his son Benjamin to see the different tradesmen at work he was merely giving the boy a lesson in vocational guidance. Fathers the world over have always been good vocational counselors, but in our present intricate civilization the father's guidance does not function as of old. It is this complexity of modern life that makes vocational guidance during the school period necessary in addition to whatever counsel the fathers may give.

It may be well to state here definitely that vocational guidance is not running an employment agency in connection with the school. In some communities vocational guidance amounts to little more than this. True, there ought to be opportunities for "placement and follow-up work" when boys must leave school to enter employment, but placement is only a small part of guidance.

Neither should vocational guidance be instituted for the sole purpose of "pushing" students into certain fields that at present need workers. This has been the stumbling block of some counselors. Vocational guidance, in brief, is merely "a course in self-discovery." The student becomes acquainted with many trades and professions and at the same time learns to gauge his own abilities and talents in relation to these trades.

For the high school superintendent or the teacher appointed to have charge of this guidance the following duties are to be recommended: (1) To carry on research about professions, trades and industries, not only in the immediate vicinity but in other quarters, for 80 per cent of our pupils will eventually earn their living away from the place of birth. This permits a body of knowledge to be built up. (2) To give out this knowledge or information to such as are in need of it. (3) To investigate boys and girls in order to discover their abilities, home environment, aims and ambitions. (4) To counsel and help boys and girls in the matter of self-discovery. The counselor must see to it that the needs of every boy and girl are carefully considered: in vocational guidance you cannot deal with pupils en masse; every student is a separate problem.

In addition to personal conferences one way of dispensing information about trades and industries is by series of lectures. This is not altogether satisfactory for lectures are many times rather general. In one school in our state this was tried in 1919 with fair results. Such topics as journalism, agriculture, engineering, business, teaching, veterinary, etc., were discussed by specialists. Each speaker was provided with an outline such as the following:

1. Nature of the work in dentistry.
2. Preparation.
    (a) Previous to vocational preparation.
    (b) Special training.
    (c) Time element.
    (e) Cost.
3. Qualifications of a good dentist.
4. When not to be a dentist.
5. Future of the profession.
6. Competition.
7. Disadvantages.
8. Years in average active career.
9. Compensations.
10. Stories.

In this same school during the past winter group conferences were held with the boys where such topics as blind alley jobs, modern business, passing trades, coming trades, modern industrialism, employment agencies, etc., were discussed. But two lectures were given, one on agricultural pursuits and one on engineering. In addition to the lectures and the conferences, "Ford Weekly" films were shown, featuring the telephone business, lumbering, the salmon fisheries, stenography, etc. This visual method proved very satisfactory.

It is well to remember that it is difficult for any counselor to pass judgment on the capacity of others, for talent shown in the early stages may vanish. At the same time, talent may not develop until after 21. It is well therefore for vocational guidance to go hand in hand with cultural as well as industrial education. It is a fact that most of our boys "find themselves" in some particular vocation. Sneider says that a boy seeks a certain trade or profession for one of three reasons: for the money there is to be made; because he can't do the work—that is, the particular work mystifies and puzzles him to such an extent that he develops a keen desire to try something beyond his powers; and because his soul wants to express itself only in this particular line. A counselor reaches the pinnacle of usefulness when he can lead boys and girls to discover for themselves the particular work where "the soul can express itself best."

Rural Recreation

Leah M. Bird, Class of 1920.

Undoubtedly one of the chief reasons why farm boys and girls have left the farm is lack of recreation. Some parents fail to realize that there is anything worth while save work, work work, considering any recreation as wasted time and making no allowances for it whatsoever. It may be that the community provides no recreation, or possibly only an occasional school program or box social. Surely such conditions would not be inducements to remain on the farm.

However, let us suppose some stay, for some do. What about the question of recreation then? The problem is of just as much importance from the viewpoint of those staying voluntarily as from that of those to be induced to remain on the farm. Every one who has made a study of human nature knows that people must have some play life. If they cannot get it in one way they will in another. If they are not given an elevating type they seek the vicious, which always proves a detriment to society in general and makes the community an undesirable place in which to live and sometimes even jeopardizes life and property. To prevent such a state of affairs, it is necessary that real recreation be given, which not only raises social standards but makes everyday drudgery less trying and monotonous. Furthermore, the elevating type of recreation quickens mental activity and directs the thought of the community to higher planes and cleaner living. Thru the avenues of recreation many opportunities and privileges come to the rural boy and girl which he could get in no other way. In his associations with others the country boy learns to meet people; he lays aside his shyness and forgets his awkwardness or overcomes it; his world is no longer bounded by his own township or county but is expanded until it takes in his state and nation; he begins to think, for he receives something which demands thought.

This task of furnishing some means of recreation for rural communities is a challenge which must be faced and met. In some communities it may fall at the door of the rural church; in others the school may be the only agency thru which conditions can be improved; in still others organizations, such as the grange, farmers' club, Young Men's Christian Association, boy scouts, camp-fire girls, or boys' and girls' clubs, may provide recreation. No matter which organizations assume the responsibility they will find that their efforts have been well worth their while.

It might be well to cite one or two instances in which communities have been benefited by provision for recreation.

In one community the young men were desirous of some form of outdoor winter sport. Since their homes were in a level region, skiing and tobogganing were out of the question and they turned to skating. However, the older people of the community could not be persuaded to assist in providing a skating rink. The boys, deprived of the wholesome sport, sought relief in getting together for card playing, which resulted in evening trips to the nearest town, where they indulged in gambling. After a year or two the people of this community awoke to the fact that they must do something for their young people. They made a fine skating rink with a good warming house in connection. A reliable person was in charge of the house, which was open Sunday afternoons and Monday, Wednesday and Saturday evenings. In addition to the skating rink educational and religious clubs were organized. "Enormous success" were the words used in describing the results obtained.

In another community there were no provisions made for the recreation of the young people. There was the occasional lecture course program of the nearby village or a school program or two during the year. However, the people, especially the young people, needed more frequent means of recreation. Since none was provided, the boys joined forces and took possession of anything and everything in the schoolhouse, regardless of any thought of the destruction of public property. The men and women gathered in the little village store on Saturday evenings and conversed on topics not always elevating. Many of the girls were glad of an opportunity to go ten or twenty miles to see some worthless movie or show. The blacksmith shop of the village was the supply store for alcoholic beverages and was frequented too often by the boys and men. The garage proved an attraction for boys and men and there they told and retold smutty stories. A consolidated school was built in the village. A high scohol basket ball team and a town team were organized and were allowed to use the school gymnasium two or three nights during the week. The superintendent of schools was always in charge of the building and warded off or put a stop to anything which flavored of indecency. It would be needless to say the boys came out in full force to the practice games. Some came only to watch the others play. In this same community a community club was organized. It gave some program every two weeks in the school auditorium. Sometimes the program was entirely of home talent and sometimes outside help was secured. These two sources of recreation proved very beneficial, but when interest in them began to wane nothing was done to revive it and consequently the standard set was not maintained.

Various suggestions for recreation come from other communities. In one county the principal of one of the town schools arranged for a county-wide field meet in the late spring. Most of the larger schools were represented. Keen interest was manifested by the older folks as well as the younger. In some communities part of the school ground is set aside as a playground to be used the whole year by any or all of the members of the community.

In another district the organization of a community choir has proved a boon to the young people. In some sections the furnishing of good library facilities relieves the situation to a marked degree and the library must not be overlooked in solving the problem of recreation.

Almost every rural community faces the problem of keeping its young people happy on the farms or of giving its older people as well as the younger a wholesome type of recreation. Life demands recreation in some form; and recreation broadens life and quickens mental activity if the right type is given. It is the duty of each community to furnish its members with the best types of recreation it can afford in order that it may produce citizens who are glad to remain in the community and who have a broad outlook on life.

Milk From the Consumer's Point of View

Alba Bales, School of Home Economics

Milk is frequently thought of as a beverage. It should be considered from the standpoint of a food, and a food of unusual composition. Milk is the only perfect food for the young; it has all the food elements required for the young animal. Because of the fact that it is a food used almost exclusively for children under one year, the woman in the home, the main consumer, should know what is meant by the word, "quality." In regard to the composition, it contains building material, or protein; fat and carbo-hydrate, energy foods; and body regulating substances in the form of minerals.

The protein of milk is of such nature as to be almost entirely assimilated by the body tissues. It is of much greater value to the body than that protein found in either meat or the legumes. The two proteins present are the casein seen in cheese and the lactal-albumen left in the whey and coagulated by boiling the whey. A large proportion of the proteins in our diet can readily be obtained from milk, and since the protein content is found almost entirely in skim milk as well as in whole milk, we can see at once that skim milk has great value in the diet.

The fat of milk, commonly called its richness, is valuable as a fuel food; therefore, when we are considering the fuel value of milk, we can see that whole milk is of greater value than skim milk. The other source of fuel from milk is the lactose, or milk sugar. It is similar to the ordinary sugar, but not so sweet. It is considered of especial value in correcting putrefaction of the intestines.

The mineral content which we get from milk is one of the most important; and from one pint of milk we get more mineral than from any other comparable quantity of food. Calcium is an especially important part of the mineral. This is essential in the food of both adults and children for the constant formation and renewal of bone, teeth, etc., and about 2% of our body is calcium,—more than any other organic element. There should be supplied in the diet each day, according to Sherman, .67 grams of calcium. This element is more likely to be lacking in the diet than any other one element. It has been shown that about 50% of the American dietaries contain less than the required amount of calcium content. Milk and cheese are by far the most important calcium containing foods. One could get the required amount of calcium per day by the use of 1¼ pints of milk, or 2½ ounces of cheese; whereas it would take 7 pounds of white flour (alone), or 21 pounds of beef (alone) to furnish the required amount of calcium. Turnips, carrots, and some other vegetables are high in calcium, but it takes a large quantity of these vegetables respectively, to give as much as a tiny piece of cheese. Thus we can see that a diet high in meat and vegetables and low in milk and cheese would lack calcium. Iron is low in milk. This element must then be supplied by the use of green vegetables and eggs. The other mineral contents of milk, of which we shall speak later, are perhaps the most important. These elements are known as fat soluble A, and water soluble B, or the vitamines.

The second point to be considered in regard to the quality of milk is healthfulness. It is not enough that a bottle of milk shall have plenty of cream or that the consumer shall say of it, it is good milk. Such milk might contain virulent typhoid fever organisms. While the milk business is run primarily because milk is a valuable food, we do know that occasionally the spread of an epidemic is due to the unhealthfulness of milk. Because such cases have happened repeatedly, there is a public suspicion which has been a severe handicap in the milk business. Any procedure in any part of the country among dairymen which will remove this suspicion does greatly increase the consumption of milk, and benefits both producer and consumer. Health authorities have recognized tuberculosis of cattle as a public menace and that tuberculosis is one of the diseases which may be distributed thru the milk supply. The history of certified milk has made it evident that a careful medical supervision of both animals and men will reasonably protect the milk from danger of transmitting human diseases, but the expense of such supervision is large. Pasteurization of milk was early advocated as a means of safeguarding the consumer against the dangers of transmitting diseases; but pasteurization, like the tuberculin test, presents such difficulties that it is not easily applied. Pasteurization, which would give the desired protection against disease germs and furnish a product satisfactory to commercial milk requirements, was the beginning of a widespread general interest in making the milk supply safe. In some states the movement toward pasteurization resulted in a state enactment. The healthfulness of milk, since it is due to the avoidance of distribution of disease germs thru the medium milk, is dependent almost entirely upon the careful and painstaking efforts of the producer. The consumer is left largely at the mercy of the producer to look after these conditions.

In order to conform with the general opinion of good milk, it must not only have food value and be free from disease germs, but it must be clean enough so that the consumer does not see a distinct sediment in the bottle of milk. Milk which shows this lack of cleanliness will be uniformly rejected by the consumer and branded poor quality. There is probably no food product regarding which there is such sentiment against uncleanliness. This is no doubt due to the fact that milk lends itself to an easy inspection. The white milk forms a natural background against which any foreign matter stands out with startling distinctness. As a result of the physical condition, the unaided eye is able to detect the presence of foreign matter in milk, even when present only in minute quantities. It is almost impossible to find a bottle of milk which is absolutely free from sediment. Even in certified milk from model dairies there are traces of foreign matter. On the other hand, certified milk of all commercial milk is freest from any particles of foreign matter, and is the most desirable from the standpoint of cleanliness. With the machinery which the modern dairy is now installing, milk is the cleanest of all foods generally produced and handled.

Milk cannot be justly called "good" milk unless it can be kept from souring at least 12 hours after purchase by the consumer. In the cooler states the delivery of milk once a day is expected to meet the needs of the family for the succeeding twenty-four hours. Accordingly good milk must remain sweet during that period and preferably during a longer period in order to justly entitle it to be called good milk. Souring is induced, of course, by bacterial growth. This plant life attacks the milk sugar, which it uses as food, and produces as a by-product, acid. When the accumulation of this acid approximates 0.3%, the milk begins to sour, and when the accumulation is approximately 0.7%, the milk curdles. The problem of the keeping quality of milk is essentially one of restricting the development of germ life. It is possible to meet this problem by preventing the entrance of germs, by destroying them after they enter, or by holding the milk under such conditions as will prevent the activity of the germs after they enter. While the problem of the keeping quality of milk is easy thus to state, the actual problem of carrying it out is extremely complex. Various cities have made regulations concerning the number of germs permissible in their milk supply. The true measure of the keeping quality of milk is the time which elapses before it sours. The effect of temperature on germ growth decides this interval very largely, so the method of temperature procedure after the milk comes from the cow until it reaches the consumer determines largely how long milk can be kept before it sours. The public has come to realize that sour milk is not dangerous except to babies. It is simply a lack of the proper care of milk from the time it leaves the cow until it reaches the consumer.

It would seem the important thing for the milk dealers to do to first of all make a thoro advertising campaign. This advertising should not be merely a scheme of advertising a product which is known to be a good food, but the aim should be foremost to instruct the public in the essential qualities of milk which make it one of the most valuable, if not the most valuable, single food product. Because of the fact that milk has been sold for years simply as a beverage and as a desirable asset in cookery processes, people have continued the use of it largely without considering the essential factors. When the price of milk has risen along with other food products, one of the first places where decrease in consumption was noticed was in the sale of milk. This was due largely to the fact that people considered it more or less of an accessory rather than an essential. There were whole families who cut down half, and in some cases cut out entirely the milk supply. This was an easy way to reduce weekly expenditures. If an intelligent understanding of the relative or comparative food values could have been given in the way of general instruction, probably such a condition would not have existed during the war food emergency.

We are told by government authorities at the present time that the general physical condition of children is very greatly lowered since the war. The large factor causing this condition is the decrease in the amount of milk consumed by the poorer class of people. Could the public be enlightened sufficiently such a mistake during a food emergency or during the continued high cost of food materials would probably not exist. The present national campaign for child welfare is due largely to the fact that feeding conditions during the war emergency have caused a lowered vitality among children and thus lowered their ability to resist disease.

Vocational Home Economics in North Dakota

Mabel M. Hollis, State Supervisor of Home Economics

At the present time there are fifteen high schools giving vocational home economics in North Dakota. These schools are very well distributed thru the state, extending from the most northwestern and southwestern corners to the northeastern and southeastern corners with a goodly representation at points between.

The general aim of these courses is to prepare girls for the most important vocation of womanhood, homemaking. There is no effort, however, to deny these girls at the same time a well rounded general education. One half of the school day for one, two, three, or four years is given to home economics and related sciences, while the other half is devoted to English, mathematics, history or languages as the girl chooses. The courses can be so chosen as to fit for college entrance.

Some of the special features of the vocational work are interesting as they put the high school home economics courses on a more practical and usable basis. The plan of carrying home projects in connection with the school laboratory course is one of the newest features and one that will truly vitalize the home economics work. This allows the girl to carry out in her own or some one else's home what she has learned in the schoolroom. The cooperation of the mother thus becomes an important consideration in carrying on this work successfully.

The girl is put on her own responsibility and does much of the planning herself. She in this way proceeds in a social environment instead of the artificial environment of the school. She solves a problem for a particular and definite purpose. She compares her results with the usual home products.

One of the other features of the course is to extend the type of work given to include more of the problems of homemaking. Previously most of the time has been given to cooking and sewing, which are important industries in the home, but not the only important ones. To these should be added, child care, laundering, sanitation of home and community, hygiene, renovating, remodeling, meal preparation and serving, storage and preservation of foods, planning and buying the household effects as well as food, and all the topics that in any way relate to the job of homemaking.

These courses should aim to train

the judgment of young people so they may meet the problems of life with a mind ready to grasp new ideas and willing to experiment with new inventions. The latest labor and time saving appliances should be available to be tested and made use of whenever possible. Doubtless one of the greatest steps forward that housekeeping could take would be accomplished by having homemakers trained to grasp new ideas, new methods and new appliances with a will to make them work as scientifically and as efficiently as possible. A break from the old habit of doing things only one way and being sure it is the best because it has been used the longest should be a wholesome change.

Last spring a vocational conference was held at the agricultural college in connection with the May Festival. There was a goodly group in attendance and a splendid spirit displayed. The desire for more detailed information concerning the administration of the courses was manifest. A conference for the current year was held in connection with the State Teachers' Association at Grand Forks, November 10th, 11th and 12th, and the schools carrying vocational work were well represented.

At the present time there is a bulletin on the press on the subject of home projects and home economics in vocational schools, which will be ready for distribution soon. It will be sent free to those requesting it.

POWER MACHINERY

Class Name
1912—William Geerdes
Theodore Vlcek
1913—Myron Bachman
Amos Johnson
1914—Frank Hatch
Victor Latt
Ralph Madison
Patrick Malone
Harry O'Brien

Class Name
Harry Picard
Kenneth Schneider
Bert Spohn
1915—Christian Christensen
Lloyd Knapp
Herbert F. Riebe
Adelbert Rusfeldt
1916—Joseph Guss
Herman Hansen

Class Name
1917—Edward Duffy
Harold Lawson
Frank Schwarz
1918—Melvin Dahl
Bjorn Fuglstad
Arthur Gunness
John H. Tyssen

HOMEMAKING

1914—Helma Halvorson (Mrs. Carl Hofstrand)
Lillie Hofstrand
1915—Frances R. Hunter
Bertha A. Schneider

1917—Myrtle Bentestuen
Anna Gullerud
Lydia Patching
Alma Pewe
Julia Tufte

1918—Lillie Rolle
Tena L. Thorson
1919—Mildred Copeland

TWO-YEAR PHARMACY

1906—Ira Larson
Benjamin Otten
Franklin Sears
1907—Einar G. Erickson
E. M. Hovey
1909—S. D. Simonds
1910—Mae Engelhorn
W. M. Humphrey
Roy H. Ward
1911—Leroy Cook

Earl Martin
Chester Mills
Henry Reddy
1912—Ephraim Kantz
1913—M. S. Henderson
R. H. Isak
1914—Arthur Fossum
1915—Orlando Boucher
Leigh Smith
E. C. Whiting

1916—T. Q. Benson
Cyril Mergens
1917—Carl E. Hanson
Mark L. Holmes
Elder Ottis
A. Martin Roisum
Roy A. Slagerman
1918—Philip Nelson

HIGH SCHOOL

1912—Emil Couey
Wm. Emery
Barbara Heidner
John Kerr
Olive Larson
Mabel McCormick
Harold Mikkelson
Wilbur A. Rankin
Lewis Reinhart
Elizabeth Samson
Helga Samson
Milton Wilson
1913—Harold Aslakson
Martin Hagen
Edwin Hooper
Ada Lachner
Harry Peterson
Bessie Thom
Peter Vartdal
1914—Harry Critchfield
Chas. Emery
Annie Geddes
Ernest Johnson
Lee McConnell
Hannah McCrea
Frank Medelman
Tillie Mjolsness
Terrence Murphy

Miller Vance
Cilfford Willson
1915—Edith Bassingthwaite
Arthur Biles
John Freeman
Warren Hayes
Mary McCormick
Marie McLeod
John Nelson
Sophus Ottis
Olga Schmidt
Elmer Steinhaus
Lucile Stuart
Hilda Welo
1916—Mary J. Horne (Mrs. Reed)
Clara Horsager
Glade Kaufman
Peter McKenzie
Willard Markuson
Burton S. Oderkirk
Herbert Riebe
Lyla Thomas (Mrs. Mason Spalding)
Earl Yerrington.
1917—Dave Anderson
Oscar Berg
1917—Edward Duffy
Adrian Foley

Freda Hultberg
William McLeod
Alexander McKenzie
Esther Pinney
Emil Sandquist
Alice Struble
Jake Van Es
Lloyd Wildfang
1918—Florence Bingham
Lydia Geyer
Jennie Mae Grey
Richard Hall
Pearl Hanson
Marie Jacobsen
Pearl Johnson
Anna Olson
Sylpha Tweto
1919—Allen Adams
George Buttles
Alma Forberg
Effie Gessner
Emma Groves
Floyd L. McLean
Josephine Paulson
Thea Thorson
Alice Tjenstrom

LOST

The office of the registrar is endeavoring to compile a new alumni directory, but up to the present has failed to receive from those named below responses to the inquiry mailed over a month ago. Information as to the whereabouts of these will be greatly appreciated.

COLLEGE

Class Name
1898—Ferdinand G. Benn
Lyman P. Bottenfield
Amelia M. Gibson
Annie Small (Mrs. A. S. Brearley)
1900—Thos. Hunter Heath
1901—Clarence B. Chacey
1902—Tom W. Osgood
Aldyth Ward
1906—Fred G. Birch
Teresa Fields
Elizabeth B. Smith (Mrs. John Edwards)
John A Swenson
1907—C. I. Gunness
Chas. R. Oshwald
John Thomas Weaver
Geo. P. Grout
Carl O. Myhre
F. Ben Otten
Elizabeth Rice (Mrs. C. I. Gunness)
1909—Asa Ross Babcock
Margaret Magill
Chas. Gordon Michels
Albert Wm. Thomas
Wm. Orr Whitcomb
1910—Cecelia Eyolfson
Katherine E. Grest (Mrs. Wm. Robinson)
Robert E. Lembcke
Wm. Henry Mercer
1911—Harold M. Dodge
Scott E. Drummond
Paul Funderhide
Ruby Gibbens

Class Name
Leroy D. Gifford
Hughina McKay
Henry Reddy
Isabel Rose
Horace Rueber
Lars Welo
1912—Alfred Anderson
Benjamin Barrett
Edwin Evingson
Amos Ewen
Ellen Syse
Soned Westlund
1913—Veta Berner (Mrs. J. W. Scott)
Gertrude Gibbens
Chas. W. Hammond
Mary A. Hooper (Mrs. George Norby)
Amelia E Lanxon
John J. Linberg
1913—Tene McCarten
Rosabelle Magill
Olive Porter
Jennie Simmons
Edna Steedsman
Enoch Sylvester
John Budd Wentz
Oscar Westlund
1914—Ernest Anderson
Alma B. Erickson
Ruby Head
Thos. J. Jackson
Gabriel Lundy
Grace Radford
Mildred Wheeler
1915—Royal Drummond

Class Name
Genevieve Grover
Carl Yerrington
Canute Gullickson
George Knutson
Alois Simonitsch
Henrik Stafseth
Geo. E. Stewart
Reuel Wije
O. O. Wilcox
1916—Agnes Bader
Mae Engelhorn
Boletha Frojen
Ray Gibbens
Ursula Grest
Edith Gross
Margaret Hutchinson
Agnes Hutchison
Leila Nelson
Ruth Nelson
Ruth Olsen
Ethel Poole
Albert Shunk
Erma Thomas
1917—Walter C. Bender
John Gazette
Martin Hagen
Lena L. Horn
Myrtle Johnston
Jas. McLaughlin
Mabel I. Wold
1918—Albert Percy Beals
John R. J. deJong
Dorothy Price
Mrs. Edna D. Sherman
1919—Peter De Boer
Otto Haenert

FARM HUSBANDRY

1905—Theo. T. Kristjanson
William Perry
1906—Amund P. Hertsgaard
Hannes Kristjanson
Mason Stowers
Stanley Thompson
1907—Thos Donnelly
Frank Hilborn
Nels Thoreson
1908—Reinhold Flohr
John Henderson
Sivert Hovskeland
Thomas P. Lewis
Einar K. Peterson
Arthur G. Ueland
1909—Ross Abel
H. A. Berthueson
Clarence Chilberg
Fred Faust
Theadore Faust
Carl Hofstrand
Martin B. Johnson
Jens Molvig
Robert H. Sampson
Peter Thoreson
Carl M. Yerrington
1910—John M. Brander
Urban Ebner
Norman Johnson
Wm Lakey
Walter L. Peterson
Alfred Robinson
1911—H. H. Bassingthwaite
Percy Donnelly

John Einerson
Swain K. Myrdal
Olondo McCulloch
Paul Schultz
1912—Allan G. Andrews
Mark Brindle
Adolph Dahlbeck
Jacob Dawson
Earl Ellis
Louis Leet
Leonard McDonald
Roscoe Montgomery
Steini Myrdal
Robert Peterson
1913—Geo. N. Brown
Hugh Colgan
George W. Else
Lloyd Ewen
Robert Hurtt
C. Edgar Kippen
Joe Radcliffe
Oscar Rygg
1914—Hugh Brown
Milton Carter
Harvey Larson
Roy Markland
George Mehl
Harry McIlroy
Omar Mockler
Albert Satre
Morton Sherdahl
1915—Mac Stark Bair
James A. Ellertson
John K. Else

Walter S. Emery, Jr.
Clarence G. Gaarder
John V. Lange
Roland Magill
Carmie Thompson
Lloyd Wildfang
Edward L. Vinje
1916—Cecil Baker
Martin Craft
Nathaniel Crockett
Philip Dawson
Edwin Gullerud
Hans Hansen
Oscar Hofstrand
Elmer D. A. Martinson
Walter McCormick
Max Miller
Stanley Nicholls
Arthur Rygg
Anton Strand
Ferdinand Weinecke
Oliver Wienecke
James Wiggans
1917—Almer Anderson
James Arthur Else
William L. Frank
Clarence Galbreath
David Leathers
Melvin C. Monson
Victor Neuens
Howard D. Osborne
Alvin Peterson
Alvin Plummer
Earl J. Wegley

COLLEGE AND STATE

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Democracy in Education

At the session of the North Dakota State Teachers' Association held in Minot in 1919, a committee on democracy in education was appointed in the section of higher and professional education. A resolution provided that a committee be appointed to formulate a procedure for a more democratic administration in our higher educational institutions, the safeguarding of academic freedom, the tenure of office and proper remuneration of the faculty. Such committee was appointed, consisting of E. B. Taylor, Jamestown College; W. J. Bell, Dickinson Normal School; A. P. Hollis, Agricultural College; J. H. Seymour, Valley City Normal; E. T. Towne, University of North Dakota; C. M. Correll, Fargo College; chairman, E. S. Reynolds, Agricultural College.

At the Grand Forks meeting of the state association in November, 1920, the committee submitted a report which was received with interest and evident approval. The findings of the committee are calculated to focus the attention of educators upon possibilities of achieving more driving power in higher education thru enlisting a more direct effort on the part of faculties in the constructive policiees of the respective institutions. The work of the committee represents at least an effort at such self-help as professionals must be expected to achieve.

In order to carry the suggestive recommendations of the committee to as large a jury as possible College and State is glad to print below the substance of the committee's report. Anyone who has ideas to offer may communicate with committee members or the chairman.

Democracy in education implies among other things the following:

1. That those engaged in daily classroom work shall have a large part in the determination of the policies and practices of the institution.
2. That all such shall have freedom in the classroom to teach their subjects as they believe they should be taught, under such supervision as shall be determined in a democratic fashion after a fair and full discussion among teachers.
3. That all shall be free from any special censure for acts and utterances outside the classroom aside from that to which any other citizen is subject.
4. That no financial control or fear of loss of position shall hold teachers in subjection.
5. That for each institution there should be democratic representation of the faculty on the board, when it is considering matters relating to the institution.

The most important safeguard is that each educational unit shall have a constitution which shall clearly state the degree of protection and of responsibility of the teachers and the method of organization of the group.

This implies that each group should be organized upon a democratic basis with its elected officers and committees. If the administrative officers are elected by the group, they may be given certain ex-officio powers subject to veto by the group and then other powers may be delegated from time to time. If the administrative officers are merely appointed by superior authorities the democratically elected committees of the group should have coordinate powers of recommendation to the superior authorities. Only under exceptional conditions should there be two sets of recommendations since cooperation between the administrators and the committees would be the usual policy. Democracy does not imply individual freedom from restraint, but rather a mutual or co-operative restraint on the one hand and on the other an insurance of justice to the individual and protection of the rights of all collectively.

Three groups are concerned in the democratic administration of an educational institution — the public, the faculty and the board, whether given the designation of trustees, regents or some other. The public, of course, includes the clientele of the institution, but also in a more general way the whole people. The students also must be considered as a part of this group. The faculty should include those directly concerned in the teaching and executive positions; and the board consists of those chosen to represent the public.

Whether we conceive of the faculty members as employees of the public or as experts to direct the educational activities of the public, we must recognize that they are co-partners with the board in determining the practical methods of placing education in its proper place in society. This principle gives us the foundation upon which to base democracy. The public, thru appropriate legislation and the appointment of the board, should voice the general will concerning education. The details should be left to those best acquainted with them. All matters pertaining to any given institution, then, should be determined by joint consent of the board and the faculty.

To protect the individual, as well as the corporate, rights of the faculty, the principle of democratic control should be adopted and guaranteed. We must not wait until overt acts compel us to form a policy, but rather with calm unimpassioned judgment provide the principles upon which proper adjustments can be made. We have seen numerous instances where boards, presidents, deans or other officials have arrogated to themselves autocratic powers and whether wisely or unwisely, whether with justice or injustice, have determined not only the educational policies of the public, but also the personal activities of the faculty members. As we have seen then, to insure the preservation of the truly democratic spirit in an institution the basic principle must be co-operation between the public, represented by the board and the faculty.

The principles suggested by this committee are not new and untried in the educational field but are in most cases well established in institutions of higher education in America and Europe. To list all of the institutions where these principles are more or less in operation would be to call the roll of our best and most progressive colleges and universities. Oberlin, Dartmouth, Yale, Harvard, Smith, Princeton and Cornell and the Universities of Minnesota, California and Wisconsin are prominent in the list, tho many others could be named. Nevertheless, the movement toward democracy has been spasmodic and without broad consideration of the inter-relationships of the various steps. It has simply grown, like Topsy, so that there is a strange mixture of democratic and autocratic methods. The former have too often been the result of the necessities of the moment without much regard for the principles involved, or their relationship to the major portion of educational policy. This committee has attempted to synthesize in a calm and unimpassioned manner, the best of these methods into a constructive, unified and consistent statement of principles which shall be at once democratic in spirit and efficient in execution. The details as applied to any specific institution must be left to the cooperative action of the board and the members of the institution.

General Principles and Conclusions

To summarize and put into concrete form the recommendations of the committee, each institution should have a written constitution, based upon the following principles:

1. The legislative body of the institution to include all who are on permanent appointment or who have been in the institution a given number of years in the grade of assistant professor or above.

2. Selection of the president, deans and other officials, who have similar powers, by concurrent action of the faculty and board. The nominations might be made by either faculty or board or both. These two bodies would meet separately and a majority vote (or any stated percentage) in each would voice the decision of the body. Nominations for positions of deans and other officers might also be made by the president or a faculty committee or both.

3. The president as one member of the faculty chosen to act as an executive to carry out the plans for the institution as determined cooperatively by the faculty and board. The president to have power of veto, over which any measure may be passed by a two-thirds vote of the faculty. The faculty may (and will normally) delegate many functions to the presidental office, and also to other administrative offices, in order to gain efficiency.

4. Selection of faculty members by the board, nominated by the faculty or its representaives in cooperation with the president. To the heads of departments should be left the right of nomination for those within the department. To the dean and an elected committee should be left the nomination for heads of departments, or in the larger departments, at least, the heads of departments should be nominated by all the members.

5. Recall, under proper limitations, applicable to all administrative officials and representatives. In the case of those officials for which concurrence of the board is necessary in appointing, the concurrence of the board in the recall would be necessary. In all cases, the electors would have the power of recall. Definite provisions concerning the size of vote necessary to recall should be made.

6. Demotions, dismissals, etc., only thru cooperation of an elected faculty committee and the president, and a trial before peers. Such a committee and the procedure should be definitely arranged at regular times so that when the emergency should arise, special action would not be necessary upon the part of the faculty as a whole. Permanent appointment on the faculty should only be after a considerable period of temporary tenure such as two years as instructor and three years as assistant professor.

7. Frequent reports from all administrative officers to the faculty summarizing their activities.

8. Complete cooperation between the faculty and administrative officers, and between faculty and board thru democratically elected committees or directly. All major matters should be arrived at by concurrent action with the president and administrative officers.

9. A democratically administered method of rating the faculty with reasonable requirements for progress. Regular rules worked out thru complete cooperation between the

board, officers, and faculty, and these (not the caprice of administrative officers, heads of departments or others) made the basis of action. One item to be taken into consideration should be the recommendation of the head of the department, or the dean of the school, but more than this is necessary.

10. Salaries and increases dependent upon this democratically administrated rating system. A salary scale with provision for regular increases should be provided.

11. Sabbatical periods provided for and to be democratically adjusted. Regular rules for such should be provided and at least some of the years of temporary appointment should be counted as well as those of permanent appointment.

12. Determination of educational policies by the faculty. Where additional expense is involved, the concurrence of the board is necessary. In a state system of schools, the inter-relationship of components of the system should be determined by conference between democratically elected representatives of the faculties of the institutions concerned. Final confirmation by the board would be necessary where finances or matters of general jurisdiction are involved. In case of final disagreement the board would decide.

13. The secret ballot in all elections of committees and where personalitiei are concerned, or differences of opinion between the faculty and administrative officers are concerned. In addition, a secret ballot should be used whenever desired by any member of the group of electors.

14. All legislation relative to the institution, whether by act of legislature, board, faculty, or administrative officers, to be open to the inspection of all.

15. Election of all official committees, either directly by the faculty or thru an elected committee.

16. Freedom in classroom teaching to be guaranteed. In the case of instructors, the method of teaching, subject to supervision as may be determined by the faculty. Regular rules governing this matter should be made by the faculty to prevent snap judgment or infringement upon the proper rights of the instructor. No one should be elevated to the higher grades who needs this supervision.

17. Freedom of extra-mural activities for all members of the faculty subject only to such control as is afforded by society.

18. Representation of alumni and elected representatives of the faculty on the governing board.

19. If possible, the participation of students in the inauguration and enforcement of rules for student discipline.

Elevator Management

J. H. Hjelmstad,
Instructor in Commerce

North Dakota is preeminently a grain producing state. The first stage in the passage of the grain from the farms is to the local elevators. These elevators are thus very essential auxiliaries in the marketing of the crop. At present there are about 2200 grain elevators in the state of North Dakota.

The problem of managing country grain elevators is gradually becoming more and more complex. The requirements with reference to grading, dockage, and quarterly and annual reports are constantly being made more stringent.

Time was when the grain buyer would determine the grade and dockage by running his hand into the load and sampling the grain by sight. This primitive method is now supplanted by the use of mechanical devices which establish with mathematical exactness the grade, dockage, and moisture content. There are very definite stipulations regarding the determination of the classes and sub-classes in which the various grains are classified. These different factors indicate that the prospective buyer needs thoro preparation for his work.

Many elevators to-day do not confine their work to the handling of grain. They supply their customers with feed, coal, wood, twine, salt, flour, and what not. This expansion of the activities of the elevator naturally makes greater demands upon the business acumen and training of the man in immediate charge of the enterprise.

Further, the manager must be able to keep accurate records of his business transactions. He must know how much money he receives and pays out, of course, but much more than that. He needs to know how much merchandise he buys and sells, how much grain of each kind and grade he buys, sells, stores, and hedges. If a farmer brings in a load of wheat and takes part of his payment in cash, part in coal, and still another in twine, the man in the elevator must know precisely how to put this transaction down on paper so that his books will show exactly what accounts are affected.

The quarterly reports required by the chief elevator accountant make an additional demand upon the accounting insight of the elevator manager, as do the annual or semi-annual reports to the board of directors.

It is evident, then, that the demands upon the men who engage in the grain business are becoming more numerous and more exacting with the passing of the years.

With the aim of assisting men who are interested in preparing themselves for this type of work, the agricultural college is offering a winter short course in elevator management. There are excellent facilities at the college for conducting such a course. The grain inspection department has its offices on the campus. The men who are regularly employed as grain inspectors in this division are in charge of the classes in grain grading and elevator management. All the equipment used in determining dockage, grade, and milling and baking values is available for purposes of demonstration and laboratory practice.

Similarly, the course in seed testing is in charge of the seed analyst at the college. This work includes a study of various kinds of seeds, germination tests, common diseases of grains, seed selection, and distribution and control of weeds.

Elevator accounting is handled by the department of commerce. The system worked out by the experts of the bureau of markets of the United States department of agriculture is used. Laboratory work is given in recording a set of typical transactions that come up in the process of the ordinary business of a grain elevator. At the close of the business period, the books are closed, and the usual reports and statements are prepared. A student who masters the principles of the course will have an intelligent conception of the bookkeeping details of a grain elevator.

Besides these special subjects, the students are permitted to select courses of a reenforcing character which they perhaps have not had a chance to include in their previous schooling or which may be especially helpful to them in their future work. This list of electives includes such subjects as gas engines, English, commercial arithmetic, commercial law, penmanship, typewriting and civics.

The old-time lawyer would get his training by working in a law office. To-day nearly all who aspire to enter the legal profession get their preliminary training in a law school. A like development is taking place in regard to business. There is now a constantly increasing tendency to give courses in business in schools and colleges. This is based upon the conviction that the business equipment of former times, acquired, as it was, thru the wasteful process of simple experience, is inadequate to meet the changed conditions of the present day.

In the past the would-be manager would go into an elevator as an apprentice or general utility man and gradually work his way up. This, however, is a slow and tedious process. With the gradual expansion and the increased complexity of the grain business, and with the organization of numerous farmers' elevator associations in particular, the demand for competent managers has become more urgent. It seems eminently fitting, therefore, that the institutions which especially aim to promote the agricultural interests of the commonwealth should give courses which will enable ambitious and energetic young men to shorten very materially their period of apprenticeship in preparing for positions as managers of grain elevators.

In Regard To Country Schools.

(From Papers Written by Students of Education at the Agricultural College).

It is an accepted fact that a child's mental condition depends largely upon his physical condition, so that progress in school requires a consideration of factors which in the past have not received their due share of attention. It is as much the duty of school authorities to provide for the physical well-being of the child as it is to provide up-to-date textbooks, intelligent teachers, proper schoolhouses, and other educational needs. The long, cold winters and the great distances some pupils live from the schools make the noon-day lunch one of the most vital problems to be considered by all who are interested in the best development of our North Dakota boys and girls. This problem can be solved only by the cooperation of the school authorities and the home.

The school hot lunch has passed the experimental period. The plan has proved its practicability and value under so many and such trying circumstances that its advocates now feel that it will succeed under the most adverse conditions. The interest and enthusiasm of both teacher and parents are the largest determining factors.—Margaret Larsen.

In all of this arithmetic work the teacher must remember that all pupils are not capable of the same amount or grade of work. One pupil may be able to do five problems while the pupil next to him will finish just one. All assignments of work should be elastic enough to make allowance for this difference of ability. If the slower pupil really understands the one problem when he is thru with it, and is capable of doing other problems of the same kind, he has accomplished the chief purposes for which the lesson was given. Of course he has not attained the speed of the first pupil but he may be just as capable of applying the process involved to some incident in his daily life.—Mary A. Kelly.

Probably one of the most frequent mistakes being made in erecting consolidated buildings today is making them too small. Almost universally a consolidated school will attract at least 25 and even 50 per cent more pupils than were enrolled in the common district schools. School officials in counties that are leading in consolidation give statistics showing that over one-half of the first consolidated schoolhouses erected have been inadequate in size within the first three years. In one northern county in eastern United States five of the best consolidated buildings were reconstructed during the year of 1913 for the sole purpose of securing more room. Architects state that it costs twice as much to add a certain amount of room to an old building as to incorporate the same amount when the building is being erected. One consolidated district reports that a four-room building which was erected in 1908 at a cost of $14,000 has been enlarged at an additional cost of $15,000 in order to accommodate one-third more pupils. Another district shows that $15,000 has just been expended in enlarging a $10,000 building. This all goes to show poor economy and lack of foresight on the part of those who planned the building.—Anna Jorgenson.

Seed Standardization and Certification.

H. L. Bolley,
State Seed Commissioner

It will be a matter of interest to the farming and business public to know that the work of seed standardization and certification, under the state pure seed law and under the laws authorizing the establishment of grades, is making good progress. Since 1909, the department of botany and plant pathology, under authorization of the pure seed law, has been conducting field crop inspection and special analysis of seed samples, taken from special seed plots or seed fields, for the purpose of standardizing and certifying to the purity, as to variety, kind and quality, for sowing or planting purposes. Under this law, the botanist and state seed commissioner has, for a number of years, prepared a so-called state seed list. This list bears the names and addresses of growers of high class bulk seed, improved, and pedigreed seed, and shows the amount of seed which they hold for sale and distribution. Under the law, this list is forwarded to citizens or other persons wishing to buy seed for sowing or distribution purposes.

Great difficulty has been experienced in finding seeds pure enough as to variety and kind, to be listed as "Improved" or "Pedigreed" seed. The calls for such seed is always far greater than the seed available or possible to list. Steps are now being taken to form cooperative growers' associations among those who are particularly interested in special crops. Among these, is the North Dakota Grimm Alfalfa Association. The growing of Grimm seed and the standardization and certification of the same have made much progress, and many lots of seed were last year listed under the state certification as "Improved" or bulk seed.

This year, the department of botany and plant pathology ha scooperated with the extension division, and particularly the county agents, to develop the idea of the seed plot in potato culture with the view of making it possible to standardize, grade, and certify high class potatoes for planting purposes. This year the pure seed department has inspected approximately two hundred seed plots, grown by growers who planted these plots under special direction of the department. The seed tubers are carefully selected for type and form, quality, and freedom from disease. The stem end is cut off, and all tubers showing internal infection discarded. The cut seed is carefully disinfected. and the vines are sprayed during the growth season for control of blights, etc. Each grower undertakes to grow an acre or more, so as to provide seed for his own crop in the future. As the potatoes are dug, fair samples of the product are transmitted to the pure seed laboratory, and there analyzed as to kind, type, and freedom from disease and the final decision is made as to certification and listing. This work of seed improvement is superimposed upon the state commercial grades lately established under chapter 138 of the session laws of 1919. Under this process, potatoes will be listed in the state seed list as bulk seed (non-certified), improved seed or pedigreed seed.

This work of standardization, certification and state listing of seeds, is pioneer work, and gives great promise of future crop improvement for the state.

The College and Its Alumni ..

An important asset of an institution of learning, altho not one to be assayed in dollars and cents, is its alumni members who have become notable in doing their life work. Some of our great institutions, like

Harvard, could establish a very decent Hall of Fame from among its own graduates. Needless to say, these notables act magnetically to the younger generations in a decision respecting an alma mater. An institution like our own suffers in comparison of this sort. Our graduates, as a rule, have entered fields of science, of teaching or of extension work, or often have become practical farmers. Obviously these lines of effort, even when successfully pursued, do not command the public attention as would the same amount of ability and application utilized in other fields. A scientist, for example, has to become very eminent indeed in order to have his name become a household word. It may be well occasionally in these columns to describe briefly the accomplishments of some of our own graduates who have done something worth while.

Thomas Franklin Manns matriculated at the North Dakota Agricultural College in 1895 from Montpelier, this state. He took the "scientific" course, the alternatives at that time being the agricultural and mechanical courses, and graduated in 1901. The energy and enthusiasm which he put into football during his undergraduate days ought to preserve his name as a "classic" at this college even unto this day. He was made assistant under Professor Bolley and soon interested himself in plant pathology and soil bacteriology. He immediately commenced postgraduate work and in 1903 secured the degree of master of science at this college. In 1904 he was appointed a government teacher in the Philippine Islands and, with Mrs. Manns, spent three years in that new possession, returning by the route which proclaimed him a globe trotter. Soon after his return he accepted the position of assistant botanist at the Ohio experiment station under A. D. Selby. He retained this position for four years and during this time undertook and completed several scientific investigations. The bulletin publications from the Ohio station which carry his name on the title page during this period are four in number, covering 200 pages, with a large number of original drawings and photographs, and deal with diseases of cereal grains, grasses, the potato and cabbage. In addition to his investigational work at the Ohio station, at Wooster, he had many extension activities which carried him frequently among the farmers.

In 1912 he was called to the Delaware experiment station at Newark to take charge of the department of plant pathology and soil bacteriology. While there he has carried on much original investigational work, along with his many other duties. He, and his coworkers, have published several extension bulletins on diseases of legumes, of the sweet potato, the sweet pea, etc. One bulletin deals with muck humus as a fertilizer and carrier of beneficial soil bacteria. His scientific work has generally stood up under criticism. Soon after commencing his work in Delaware he made arrangements to continue his postgraduate work with the University of Pennsylvania, where he took his doctorate in due course of time. The success which has attended Dr. Manns in his life work indicates that the institution in its youth graduated men of ability.

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A Suggestion For Education

It is said that Andrew Carnegie once made the statement that his organizations were of more value to him than his plants. Writers on industrial efficiency now emphasize the importance of the human factor as compared with brick, mortar and equipment. Education may draw a lesson from industrial experience and realize that staff outvalues buildings. It was the observation of the Moseley commission, which visited the schools of the United States some years ago, that in our country there was disproportionate emphasis upon the material plant as against instruction. The English observers were quite emphatic in regard to this. The tendency toward collapse which has appeared in the educational world cannot be traced to the physical factor.

Trained For What?

The North Dakota Agricultural College is essentially a vocational college, and as an institution echoes the thought expressed by Abraham Lincoln, in words quoted by Gantt in his "Organizing for Work": "To secure to each laborer the whole product of his labor, or as nearly as possible, is a worthy object of any good government. But then the question arises, how can a government best effect this? * * * Upon this the habits of our whole species fall into three great classes—useful labor, useless labor, and idleness. Of these, the first only is meritorious, and to it all the products of labor rightfully belong; but the two latter, while they exist, are heavy pensioners upon the first, robbing it of a large portion of its just rights. The only remedy for this is to, so far as possible, drive useless labor and idleness out of existence."

Botany in Hawaii

O. A. Stevens

Alumni, former students and instructors may be interested in a letter recently received from Dr. H. F. Bergman, giving some reports of his work and of his impressions of Hawaii and its plants. Professor Bergman was in charge of classes in botany at the college from 1908 to 1912. He then accepted a similar position under Dr. F. E. Clements in the University of Minnesota, where he also completed his graduate work for his doctor's degree. Leaving Minnesota, he spent about two years with the United States department of agriculture, doing investigational work in plant diseases, especially of cranberries and other small fruits. In the fall of 1919 he went to Hawaii, where he is now professor of botany in the

University of Hawaii, located at Honolulu.

Much of his first year in the islands seems to have been given to building up the department, adding new laboratory apparatus, reference works for the library, etc. His principal lines of investigation have been in movements of gases within the plant tissues. The Pan-Pacific Scientific Congress at Honolulu in August brought many scientists from the United States, the Philippines, Japan, Australia and New Zealand. The location of the islands makes them a natural stop-over point for Pacific travelers. This affords an opportunity for visits with scientists passing to and from the other side and is some recompense for the isolation from the United States and the world in general.

Evidently the transportation service between San Francisco and Hawaii is not what it might be, as Dr. Bergman was delayed several months in getting across, and now wishing to return for a summer he fears that passage will have to be arranged about a year in advance.

Pineapple culture seems to have produced strong impressions upon the mind of our friend. He writes that fruit naturally ripened is as much superior to that which we of northern latitudes receive, as it is with various other fruits. The fragrance is said to be especially wonderful. Magnify this to the extent of 10,000 acres and we have a scene presented by a field of the Hawaiian Pineapple Co.

Pleasant as it is to escape the northern winters, Dr. Bergman writes that the coming of spring is much missed. Apparently the sight of our spring flowers would be quite as wonderful to some one from the tropics as the Elysian picture which many of the north are accustomed to imagine in the tropics. Even some Frenchweed or shepherd's purse would look good, he writes. "Some kinds of plants are always in bloom and others show a marked seasonal tendency. May and June are the flowering months more than any others. Most of our ornamental trees and shrubs are introduced. The native plants are a disappointment. Except for the interest which they possess as 'endemics' there is nothing else to commend most of them as they do not have showy flowers." Some of the peculiar features of the native plants are tree forms in families represented in our regions by small herbs, such as violets and lobelias.

In this connection it may be of interest to quote further from an article on the flora of the Manoa Valley, in which Honolulu is located. This was written by Dr. MacCaughey who was formerly at the same institution, and was published in the American Journal of Botany for December, 1917.

Manoa Valley is about three miles in length by one to two in width, being broadest at the head. At its head is a mountain range with the highest peak a little over 3,000 feet. The trade winds, blowing from northeast, deposit their moisture on and beyond the mountains, the rainfall being about 150 inches in the upper valley, decreasing to 40 at the coast.

The valley floor (below 300 feet elevation) is roughly an area about two by three-quarters miles. The soil is a red-brown adobe washed down from the mountain ridges; it is "fertile, stiff and intractable in cultivation, and exceedingly retentive of moisture." The plants of this portion are mostly introduced, only 40 out of 170 mentioned being native. Among these are dandelion, mallow, plantain, lambsquarters, purslane, sorrel dock, an annual sow thistle and two or three familiar grasses. The others bear strange names except some which are evidently closely related to those of temperate America. Among some so named as larger and dominant, the castor oil plant, a prickly pear and cocklebur appear.

The Manoa rain forest is composed almost entirely of shrubby or woody plants averaging only about 25 feet in height. Most of them are species found only in the islands and some only on this particular island. They are slow growing and have in general, small, thick, dark-green leaves, Tree ferns, palms and vines are not abundant, and there is practically no grass or annual vegetation. The lower forest is more favorable to plant growth, contains more undergrowth, and has been changed greatly by man thru the introduction of crop plants and grazing animals.

Some notes on the birds also are given by MacCaughey. Of eleven which are said to be characteristic of the valley floor, four are native (an owl, a coot, a gallimule and a night heron), and seven naturalized. The latter include the ubiquitous English sparrow, rice bird from the East Indies, the mynah (a bird of the starling group from India, said by Knowlton to be extremely abundant in Hawaii), skylark, Chinese turtle dove and reed warbler, and Australian alae. Eleven also are mentioned from the rain forest, all native, six having become extinct in recent times, the others present in small numbers.

It is believed that thru prolonged sinking of the islands, the plants and animals have been forced upward into conditions not natural to them. This would account for the unusual forms and surroundings as well as the rather rapid disappearance of various species.

Another recently published article on the plants of the islands is by Dr. A. S. Hitchcock in the Scientific Monthly for October and November, 1917. This is illustrated by numerous photographs and gives some impressions of a five months visit including all of the larger islands. He also speaks of the uninteresting nature of the wild plants around Honolulu, but describes the numerous introduced palms and other trees as very handsome indeed. One of the interesting plants mentioned by him is the silver sword, found on the crater of Haleakala. This is related to the sunflowers and bears narrow sword-like leaves in dense hemispheric clusters; the leaves covered with fine hairs which glisten in the sun. Quite in contrast is a plant from nearby wet ravines which has rounded leaves three or four feet in diameter.

Experiments With the "History of Our Own Times"

Earle D. Ross, Professor of History

Less than two decades ago the author of a "standard" treatise on the teaching of history could write thus condescendingly of our national history since 1865: "The study of the recent history of the United States is useful as a study of current events, and yet its incidents are so near that it is impossible for either pupil or teacher to see them in their true perspective. All that is significant since the [civil] war may be understood quite as well from the events of the period which ended during Hayes' administration." So far has our value emphasis shifted that today there are not lacking educators (not, it should be said, of the history gild) who go to the other extreme in maintaining that all that is of most value in our national development may be had in the study of these years. And we have this near-heresy even, coming recently from the head of the history department of a leading state university: "However important the colonial period may be as revealing the beginnings of American nationality and political institutions, who can deny the wisdom of slighting it in order that the history course may contribute more fully to the pupil's understanding of contemporary American life and its problems?" Surely there must be no deliberate "slighting" of any period; readjusting, reorganizing, and even subordinating of certain periods and phases there may well be, but slighting is slighting, as sure as "lies is lies." It is evident that we must reconcile somehow these two points of view. Most, if not all, history teachers are agreed on the aim, pragmatic in the best sense, of studying the past to understand today's problems. But the truism that the roots of the present run far back in the past still holds, or, to paraphrase Kipling, little they know of the present who only the present know. And so many of our problems have roots like the poplar, running far and wide; so many of them go back to the "middle period" and even to colonial times. As teachers of our national history we need to beware of any slighting.

On the other hand, having thus established our "soundness," we may boldly affirm that there is much of significance that our history before the eighties does not reveal, that these latter decades furnish the real flowering time of our nationalism—the appearance of the "new nation," and, however far back we have to follow up the roots of our present issues, certain it is that the "history of our own times"—using this phrase to cover the period since 1865—gives the direct background of the life we are leading and hence connects up most vitally and vividly with the needs and experiences of the average citizen.

The difficulties of providing suitable treatises both for the student and the general reader are perfectly obvious. Limitations in perspective and materials there must always be in the writing of contemporary history. The criticism that "Recent American history, as the period is treated in the average textbook, appears to be a mass of miscellaneous happenings without central connection" is not overdrawn, and more direct and extended studies have often yielded no better results. But the full justification of such continued experiments is given in the apologia of Professor Lingley, the latest of the experimenters: "It used to be believed that history could not be written until at least half a century had elapsed after the events which were to be chronicled. It is of course true that only after the lapse of time can students gain access to ample documentary material, rid themselves of partisan prejudice and attain the necessary perspective. Unhappily, however, the citizen who takes part in public affairs or who votes in a political campaign cannot wait for the labors of half a century. He must judge on the basis of whatever facts he can find near at hand. Next to a balanced intelligence, the greatest need of a citizen in the performance of his political duties is a substantial knowledge of the recent past of public problems. It is impossible to give a sensible opinion upon the transportation problem, the relation between the government and industry, international relations, current politics, the leaders in public affairs, and other peculiarly American interests without some understanding of the United States since the Civil War."

Whether due to the inherent importance of the field or to the need of virgin soil (Bryce said some years ago, with all too evident sarcasm, that he was alarmed at the rapidity with which history was being "used up" by investigators!), the period has been brought within the range of serious investigation. The latest issue of the "List of doctoral dissertations in history now in progress at the chief American universities" includes such titles as The Return of the Democratic Party in 1884, American Steel Profiteers, Pension Legislation Since 1885, Western State-Making, 1888-1890, Purchase of Danish West Indies, Recent American Relations with France, and Recent German-Acerican Relations — all coming far beyond the danger signal set by our pedagogical flagman.

As some of the foregoing subjects, and countless others that come to mind, suggest, the period offers peculiar difficulties apart from the considerations of perspective and available materials. The complex economic, social, and intellectual forces which run thru our modern life will make the task of organization one to try the mettle of any future historian. The problem of the "history of the people," always sufficiently complicated, becomes well-nigh hopeless when the doings and interests of the people are so extensive and so interfused. With these twofold difficulties to overcome, we must not expect the impossible of our contemporary historians, and we must give them the credit that ever belongs to pioneers.

Before considering the general treatments of the period a brief glance must be had at the special studies which are so essential to the making up of the rounded-out pitture. First in order is the form nearest to the raw materials of history, the monograph. The political, the simplest and most obvious sort of history, has naturally been most fully developed. Each of the ex-Confederate states has now been followed thru the wastes of reconstruction; the party politics of various northern states have been traced down to the eighties and beyond; and general party history has been seen thru the Progressive revolt. In spite of the conscientiousness with which most of these monographs have been worked out, few of them can be regarded as "final" treatments, by reason of the incompleteness of the evidence utilized. Probably the most attractive of these political studies for the general reader is Haynes' Third Party Movements Since the Civil War, a highly suggestive, if provisional treatment.

Considering the extent to which business interests have dominated this period, surprisingly few noteworthy contributions in economic history have thus far been made. Standard treatises like Bogart's Economic History, Dewey's Financial History, Taussig's Tariff History, and Commons, History of Labor trace their movements down to the present with more or less thoroness; and important contributions falling wholly within the period are Tarbell's Tariff in Our Time and History of the Standard Oil Company and Noyes' Forty Years of American Finance. In agricultural history the outstanding work is Buck's Granger Movement, the only adequate treatment of farmers' organization in the United States and in every way a model monograph.

If activities in the material realm have been inadequately recorded, there has been a still more signal neglect of the things of the spirit. The intellectual field, whether or not yet ripe with harvest, has had few efficient garnerers. Professor Merriam has recently provided a painstaking survey of American political ideas since the civil war, and Professor Pattee has essayed the daring feat of appraising our literary achievements from the "gilded age" of the seventies. The epochal educational developments that our own times have witnessed have had but the most superficial attention from the historian. Religious movements from the seventies when the "theological pool was still untroubled" to the unsettled conditions of recent years have found no serious interpreter.

In biographical writings coming largely or wholly within these years, our times compare very favorably with earlier periods. Personal memoirs have appeared in abundance, with all the characteristic limitations of such writings but with entertaining and often enlightening side-glimpses of the life of the times. Such names as A. D. White, G. F. Hoar, Theodore Roosevelt, T. C. Platt, Henry Clews, Henry Villard, Andrew Carnegie, Everett Wheeler, Washington Gladden, Hamlin Garland, S. S. McClure, N. S. Shaler, and Henry Adams, indicate the diversity of interests and points of view represented in these reminiscences.

Of regular biography in the political field, the American Statesmen Series has been extended to include Grant, John Sherman, Blaine, Hay, Hayes, Reed, and McKinley; and a "definitive" biography of Cleveland is under preparation. Among the rapidly accumulating biographies of Colonel Roosevelt's two-volume collection makes the best contribution, tho it is largely documentary in nature. In straight biography W. D. Lewis has given the best interpretation thus far. President Wilson has been the subject of more biographical studies than any other president during his term of office. Of the dozen or more studies by American and foreign biographers that by Professor W. E. Dodd is by far the most scholarly and thoro. The relations of big business to politics—a matter that looms threateningly large at some stages of our times—is strikingly set forth in the biographies of Jay Cooke and Marcus A. Hanna. Other notable biographies, of people who have made history in varied fields, are those of John Fiske, Mark Twain, Thomas Nast, E. L. Godkin, Charles A. Dana, Henry D. Lloyd, Henry George, Frances E. Willard, Susan B. Anthony, Mary B. Eddy, James J. Hill, J. P. Morgan, George Westinghouse, and Joseph Choate. Regional leaders are represented in the lives of J. B. Weaver, W. P. Hepburn, J. C. Burrows, J. J. Ingalls, W. Q. Gresham, H. G. Davis, and a forthcoming study of Ignatius Donnelly.

A number of detailed histories extend well into our times and a few come down "to date." The volumes of the cooperative American Nation Series tread their straight and narrow path thru these years without, on the whole, especial distinction or originality of treatment, but keeping rather to conventional topics and interpretations. But their narrative is clear and interesting, their organization is firm and orderly, and their bibliographical aids are indispensable to the student. Another cooperative undertaking The Chronicles of America, the concluding volumes of which are just being issued, approaches the period by the topical method, and, with a frankly popular treatment, makes a still more enticing appeal to the indifferent student and to the general reader. James Ford Rhodes' continuation of his opus magnum (History of the United States from the Compromise of 1850) from 1877 to 1896 is a decided disappointment in its lack of appreciation of the tremendous economic and social forces which were stirring the republic to the depths. As he passes away from the civil war epic Rhodes' interpretative touch becomes steadily weaker. The most pretentious chronicle of the post bellum age thus far projected is Ellis P. Oberholtzer's History of the United States Since the Civil War, to be completed in eight volumes, only one of which—bringing the narrative to 1868—has appeared. Oberholtzer's breadth of treatment, if it continues in the succeeding volumes, is most commendable and makes his work of the nature of the history of the people; but unfortunately, like McMaster in the earlier period, he has little of interpretation—he answers to a considerable degree the what and how of events, but he leaves the reader to determine the why.

But however attractive bibliographical details of two or three-decker histories are provided, it doubtless remains true that the one-volume canoe will be mainly relied upon by both the student and the general reader for passing thru the troubled waiters of our times; and these handy but uncertain crafts are being launched in rapid succession by industrious and daring artificers. The first venture of the sort was made by E. Benjamin Andrews' (Last Quarter Century, 1870-1895, revised and extended to 1903 as United States in Our Own Time) in a popular, graphic narrative, originally utilized in magazine articles, which describes the colorful episodes but ignores the underlying tendencies. The versatile Harry Thurston Peck carried events a little farther in his Twenty Years of the Republic, 1884-1905, a series of vivid, journalistic word pictures in which the picturesque effect is in nowise hampered by the demands of critical, unbiased scholarship. Paul Leland Haworth has made the attempt to combine the popular appeal of the foregoing writers with the accuracy and proportion of the critical historian, and his work shows unmistakably the influence of a journalistic career upon a well trained student of history. In a little volume in the Home University Series (Reconstruction and Union) he surveyed the period to 1912; and now in the United States in Our Own Times he has expanded his treatment and carried the narrative to 1920. Haworth has a wide knowledge of the period and, when he will use it, a good critical insight; but he all too often subordinates other considerations for an enlivening story and for a dramatic effect. His journalistic proclivity appears, too, in an occasional over-positiveness of assertion on moot issues, and in an indulgence in expressions which are lacking in the dignity which the history of any period, no matter how recent, if it aims to be serious, demands. However his direct, vivid narrative will be found highly entertaining to most readers, and he is generally accurate in the statement of facts. Fresh from the press is Charles R. Lingley's United States Since the Civil War, which comes down to the election of 1920 or to the latest happenings when the final proofs went in. By a greater use of the topical method Lingley is enabled to give more direct and fuller attention to economic movements than Haworth; and his style while more dignified and didactic loses little if anything in interest. Tho contributing little in information or interpretation to what has already been written, the book shows a skillful organization of materials and a clear presentation of facts and movements. Charles A. Beard has provided a characteristic "economic interpretation" of the years 1877-1912 in a survey (Contemporary American History) which is often highly suggestive if not always well balanced. Frederic L. Paxson's New Nation in the Riverside History of the United States (published 1915, latest edition to 1919) is probably the most successful attempt thus far made to interpret our times. With a narrative style unsurpassed by any of the other writers of our contemporary history, Paxson delves far more deeply into the underlying philosophy and gives in interpretation as well as a chronicle of events. His book, compacter in size and more compressed in statement than the others, thus indicates a more thoro mastery of the materials and a fuller and clearer thinking thru of the problems. Two influences in Paxson's preparation for his task that have undoubtedly contributed very largely to his success are his close study of the history of the west, a region too little understood by most contemporary historians, and his special attention to the problems of transportation, which provide the most important single key to the understanding of our times. The New Nation may be commended especially to those general readers who like to be made to think things out after the author, as well as to be furnished entertainment along with more or less important information.

As this hasty summary indicates, the history of our own times has been and is being worked upon from many angles and with many different viewpoints. That the attempts to organize and interpret the period as a whole should thus far have been largely experimental was inevitable; but no less credit is due the experimenters, when they essay their task with a serious purpose and in a devoted spirit. The value of the results, provisional in part tho they may be, of such serious efforts to interpret the nation's past evolution for those who are shaping the nation's future destines is beyond estimate. The case for our times, the proper balancing of its elements of strength and weakness, is far from being completed, the evidence will never all be in in our time; but it is none the less the duty of our great citizen jury, whether in the training or already impaneled, to utilize to the fullest extent such evidence as is established in making up its constantly demanded verdicts.

The North Dakota Pharmacy Club

The North Dakota Pharmacy Club is a student controlled organization founded in 1906 by the instructional staff of the department of pharmacy. It purposes bringing its members into a closer relationship by means of occasional social functions whereby mere acquaintanceship among the members may develop into friendship. The club also meets once each week at the pharmaceutical seminar hour, at which time topics of general interest to the profession are discussed. At this hour also the senior members of the club read papers dealing with the manufacturing and commercial side of pharmacy, and speakers from other lines of business and professional life frequently address the club.

Since its organization the club has been more or less active but during the war period its activities practically ceased. Its subsequent growth and activity give it a place in the foremost rank of the student organizations on the campus.

The school year of 1920-21 has been unquestionably the most successful year of its existence. The activities of the club began during the month of October, at which time a meeting was held for the purpose of inviting the newly enrolled students of the pharmacy courses to become members. Any student registered in the school of pharmacy is eligible for membership and at this meeting all registered non-members of the different courses signified their intention to become members by accepting the invitation. During the following week the initiates were invited by the members to a picnic luncheon at Oak Grove park, at which affair harmonious relations were at once established and everybody became known to everybody else. Everyone had a good time as was evidenced by the amount of sizzling wieners, delicious sandwiches, pickles, scorched marshmallows and picnic coffee consumed.

At the present time there are 42 active members in the club, all being residents of this state with the exception of 5 who claim Minnesota, Wisconsin, Illinois, and Montana as their home. The members do not confine their activities strictly to the club and its affairs for 57 per cent of the membership belong to other student organizations.

A summer session will be held at the Agricultural College from June 20 to July 29. Courses from all departments will be offered. Training work for vocational teachers will be emphasized. A special circular will be ready for distribution soon.

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Vocational Education and Land Grant Colleges

By E. H. JONES,

Professor of Agricultural Education, N. D. A. C.

Barely one and one-half percent of all our young people ever enter college and less than one-half ever graduate. Many people have therefore concluded that our public schools should provide for young people above fourteen and of less than college grade, a system of vocational education to train them not only for professional preparation, as our high schools have been doing, but likewise to train them to develop the power to earn a livelihood.

The Smith-Hughes Act was passed by Congress in 1917, authorizing a federal subsidy to all schools that accepted provisions for carrying on vocational education. Its aim is not to displace other schooling, but to fill a gap in education for pupils of high school age, and to provide short unit courses of training for those in later life who were without this training in their high school years.

Many schools in this country have been endeavoring to fill this particular need of our boys and girls. North Dakota authorized state agricultural high schools with the idea of their accomplishing this work. At about the same time the state legislature authorized the foundation of county agricultural schools. Two of these were organized, and they and several other schools in the state have convinced those acquainted with the facts of the need and future for this work in North Dakota.

When the Smith-Hughes Act was passed, North Dakota immediately accepted the chance to receive substantial aid in this work.

For eight hundred years the one great slogan was "mental discipline," but gradually powerful influences from without the schools began to challenge the educational institutions with the idea that "knowledge, to be of worth, must not only train the mind: it must likewise train for the immediate, pressing, practical affairs of life." Herbert Spencer and others protested against the domination of the familiar ideal in education that "mental discipline was the supreme thing."

Parallel with this movement came the establishment of land grant colleges. Justin S. Morrill of Vermont, the originator contended that Congress and the state legislatures ought to unite in furnishing a "liberal and practical education. We should, said he, train all young men and all young women for "success in life; some for usefulness in the learned professions, others for success in the great, basic, economic industries." The Morrill Act became a law in 1862. As the years have passed, the old colleges have been affecting the new, and the new have modified the old. The training in the new college, Mr. Morrill said, must be liberal and practical. The education in the old college, leaders today are demonstrating, may be both practical and liberal. Today every state in the Union and even Hawaii and Porto Rico has its agricultural and mechanic arts college, and, so imitative of the college is the school, in both spirit and methods, that we may almost say, "as does the college, so does the school." This has resulted in increased sentiment for the establishment of schools of secondary grade to take the relative position among high schools of the nation occupied by the agricultural colleges among the higher institutions.

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A. C. Trains Leading Paint Chemists.

Unique in its reputation and service is the training course for paint and varnish chemists which is included in the Agricultural College's school of chemistry and technology, of which Dr. W. T. Pearce is chairman. Besides the research work dealing with paint and varnish tests, the department is recognized as one of the nation's leading training centers for paint chemists.

This year a new section has been added to the well-known paint fences at the college, on which paints made up of various combinations of ingredients have been exposed. Some 240 different white pains have been used in constructing the new fence. Twelve representatives of leading eastern paint manufacturers are to visit the paint research projects this fall.

Following are some of the graduates of the school of chemistry at the Agricultural College, many of whom are in paint and varnish work. Some of these men are included in the list of manufacturer's representatives who are visiting the college this fall.

Leo Nemzek, '09, is technical director, Paint and Varnish Division, E. J. du Pont de Nemours and company, Philadelphia. Nemzek returns to A. C. each year to look over the paint and varnish work in progress. Only the prairie chickens and ducks regret his visits.

Levi M. Thomas, '09, chemist, Mid-west Flour Mills, Columbus, Ohio.

Chester A. Holkesvig, '11, dry color chemist, Lucas Paint company, Gibbsboro, New York.

Henry Riddy, '11, paint and varnish chemist, E. J. du Pont de Nemours and company. Philadelphia.

Ralph Beard, '12, formerly cereal chemist, Agricultural College, graduate school of chemistry, University of Minnesota.

C. Louis Schuman, '13, chief chemist, Pratt and Lambert Varnish Company, Buffalo, New York, won his M. S. and Ph. D. at the University of Michigan.

Gustave C. Ziegelman, '13, technical director, Paint and Varnish Division, Sears, Roebuck and company, Chicago.

Herbert E. Gress, '14, is a paint manufacturer in East St. Louis, Illinois.

Lloyd E. Kelly, '16, is plant superintendent, E. J. du Pont de Nemours and company, Philadelphia.

Louis Engerud, M. S. '16, is plant superintendent, Patterson-Sargent company, paint and varnish manufacturers, Brooklyn, New York.

Charles T. Ellis, '17, chemist, Acme White Lead and Color Works, Detroit, Michigan. Ellis is a member of the legislative committee of the National Varnish Manufacturer's Association, and was chairman of the committee sent out to discuss problems connected with the new varnish law. He is now in charge of a laboratory, employing several of A. C.'s recent graduates.

Robert R. Lewis, '18, chemist, Haas and company, New Haven, Connecticut.

Ole A. Nelson, '18, M. S. Princeton University, '19, is assistant chemist, U. S. Bureau of Standards.

Harold Rasmussen, '18, is chemist, Morris and company, Chicago.

Rudolph S. Frigstad, '19, research chemist, American Cotton Oil company, Chicago.

Harold S. Holt, '19, M. S. Harvard University, '20, graduate student of chemistry, John Hopkins University.

Kenneth E. Clarke, '20, chemist and assistant superintendent, Charles R. Long Paint company, Louisville, Kentucky.

Lewis R. Croal, '20, chemist, American Cotton Oil company, Chicago.

Culver S. Ladd, '20, oil chemist, Agricultural College.

Walter A. McKim, '20, M. S. Massachusetts Institute of Technology, instructor, Agricultural College.

Paul J. Peterson, '20, chemist, Acme White Lead and Color Works, Detroit, Michigan. Mrs. Peterson is former Lillian Hansen, '17.

Ralph W. Baku, and Immanuel Johnson, both '21, chemists, Acme White Lead and Color Works, Detroit, Michigan,

Modern Domestic Architecture

STANLEY A. SMITH, A. I. A.

Department of Architecture, N. D. A. C.

"What kind of a house shall we build?" That question is common now among the greater number of prospective home owners, who wish to keep abreast of the times by having their new home up to date in every respect. A survey of the recent architectural magazines indicates that not only the home owners but the architects are giving more serious thought to efficient and pleasing design, especially of the smaller residences. Undoubtedly this tendency is partly caused by the comparatively high cost of construction at the present time with its consequent influence on the size and style of the modern home. At present the prospective builder carefully considers the idea of utilizing all space possible, and the reduction or even elimination of the less important rooms.

What rooms can be reduced in size or even eliminated? Apparently the modern home builder considers that the large front stair or reception hall of our forefather's house took up too much space. A close perusal of the current architectural press shows that in the present day homes the hall is reduced to a minimum size consistent with efficient service and a small vestibule is utilized,—especially in the northern climates.

Engineers at A. C. are as keenly interested in good roads, in the home-builder's problems and in better home heating systems as they are in other engineering feats. Professor Smith, whom various North Dakota civic bodies have heard in the past year, gives us an indication of the architect's vital interest in greater individuality and in well designed styles for the home.

Another room which is being gradually eliminated, especially in the smaller residences, is the dining room. Mr. and Mrs. Homebuilder, how many times during the year do you have company for meals? In all probability you will be surprised at the result. In other words, would it not be possible in your new home to eliminate the dining room and make provision for the family to eat in one of those cozy dining nooks which are so popular? It at least would save lots of extra work for the housewife. Furthermore most of the company for meals are close friends or relatives who can be entertained informally. In case of more formal dinners, the dining table, which serves as a living room table between times, may be set in a convenient part of the living room.

Quite radical from the older type of residences are the new homes with the kitchen placed on the front side of the house. Advocates of this plan claim that it should have been so placed long ago, especially in the home where the housewife does not employ a maid. The housewife spends a big share of the morning in the kitchen and with this scheme, she can watch for the milk man, the ice man, or other tradesmen when she wishes an extra quart of milk or other goods. This necessitates a side entrance or porch for the kitchen rather than the rear porch, a feature which all tradesmen will appreciate.

The modern living room should be quite large since it now takes the place of the old reception hall, parlor, sitting room, library and dining room,—five rooms in all. It should be comfortable and homelike, and, if possible, broken up with nooks and ells so that the children can entertain their company in one corner without disturbing mother who is writing a club paper or checking over the grocery bills in another. A fireplace is an essential in this kind of a room. Not one of those cast iron, coal burning grates but a real honest-to-goodness big fireplace with its cheerful wood fire. A fireplace of this type ought to be built in every home regardless of whether it is used or not. It is a most efficient ventilator. The modern living room too has been shifted from the time honored position in the front part of the house. It is now placed in the rear overlooking a well planned garden. The devotees of this change argue that, with the exception of the immediate foreground, we cannot change the view out of the front windows but we can plan our back yard to become beautiful pictures when viewed from the living room or living porch. Our living porch too has been shifted to the rear or side where it is convenient to the living room. The front porch now becomes merely a small entrance stoop.

Sofar we have spoken only of the plan. What shall the exterior of our home look

(*Continued on Page 16*)

Agricultural College,—

DR. JOHN LEE COULTER,

Altogether too often we fail to appreciate the fact that the agricultural colleges of the different states in the union were created by the states and further that the agricultural colleges are chiefly supported by the states. Only a very small part of their funds come from the federal government or from the students or from special fees for services rendered. In thinking of the agricultural college then we must always think of it as a "state institution" organized by the state, supported by the state, and having in mind service to the state. From this standpoint everything done at the agricultural college should have in mind the greatest service to the greatest number of citizens of the state. The relationship of the college to its own faculty and staff, to the student body, and to the former students and alumni must always have in mind the interest of the state as a whole.

There are those acquainted with the agricultural college who think of its work as being divided into four general divisions. One of its divisions is an Experiment Station in agriculture. The duty of this division is to carry on surveys, investigations and experiments searching for truth. It is the duty of every citizen of the state who knows of unsolved problems or who has agricultural subjects which need study to bring them to the attention of the experiment station, and it will ever be the desire of the station staff to wrestle with these problems and to seek wise solutions. Unforturately the Experiment Station is restricted to research work in the field of agriculture and is not provided with funds or equipment to extend its studies to the fields of home economics, mechanic arts and other departments of work carried on within the institution. One of the great needs of the institution at this time is to convince the people of the state that they should provide funds with which to carry on searches after truth in other fields than agriculture.

A second division of work is known as the Extension. This division is organized to carry all of the latest information in agriculture and in home economics to all of the people of the state who desire instruction in this field. The Extension Division, unlike the Experiment Station, includes the whole range of home economics, but it does not extend to mechanic arts or other lines of work. The Extension Division has been carried one step farther than the Experiment Station in this respect. It should be carried on to the next step at the earliest possible date, and a second need at this time is for the people of the state to see the opportunity for extension work in mechanic arts and other phases of education.

We must think of the agricultural college as a state institution, organized by the state, supported by the state, and having in mind service to the state. From this standpoint everything done at the agricultural college should have in mind the greatest service to the greatest number of citizens of the state."

The third division of work frequently referred to is that which has to do with enforcement of a number of state laws which have reference to public health and general welfare. In many states of the Union this responsibility is not placed with the agricultural colleges but in this state it has been thought that since the institution is completely equipped with scientific experts along many lines, and also is provided with complete laboratories for scientific analysis, the responsibility for administration of these laws having to do with health and general welfare should be placed in the college. It is generally held that the state should most certainly have a right to claim the time of all of the scientists and the use of all of the laboratories in connection with any such work as the state may wish to have done. On the other hand there are those who would be far better satisfied if the actual enforcement of the laws were in the hands of a public officer directly responsible to the governor of the state.

Probably the student body of the college, and this might well include former students and alumni, are least interested in the three divisions of work referred to above. It may truthfully be said that the great outstanding basic task of the institution is its task as a division of the educational system of the state. It is a college, and this means that it must stand out pre-eminently as a great teaching institution.

A State Service Institution

President, N. D. A. C.

From this standpoint it is provided with classrooms and laboratories and with faculty and experts qualified to give the very latest and best instruction to the hundreds or the thousands of boys and girls sent to it by the people of the state to prepare them for more useful service. It is therefore interesting in the welfare of boys and girls everywhere and in order best to take care of their needs, provision is made for winter short courses for those who can come only a short period of time; secondly, for industrial courses in farm husbandry, home economics and mechanic arts, for those students who can come only a part of the year and have not completed all of the preliminary work needed to enter the collegiate courses; thirdly, for students in all parts of the state, who are unable to complete a high school course in their home districts, a high school of agriculture and manual arts is provided to give a chance to students to qualify for the collegiate courses; and finally the college provides a wide range of collegiate instruction for those who desire the most advanced and most thorough preparation for their life work.

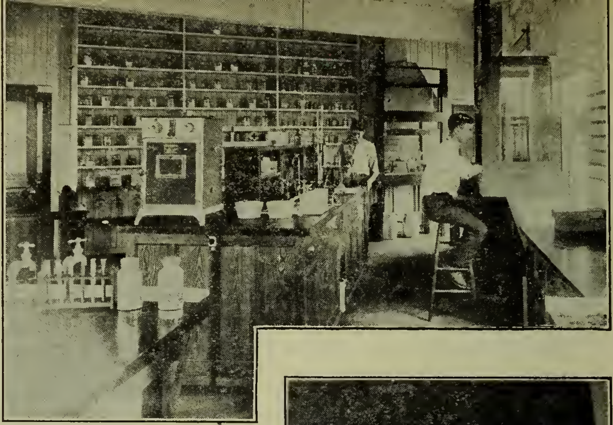
The agricultural college is not restricted to agriculture but covers a wide range of subjects. It should be the duty of every student, past, present or future, to emphasize this among the people of the state so that the name may not be misleading. The work for purposes of ordinary presentation is divided into departments and schools. Thus the School of Agriculture includes all of the different departments dealing with agricultural life except the work especially given in the School of Veterinary Science. Then there is the School of Home Economics which from the standpoint of home life corresponds to the other branches of work. The third branch is the School of Mechanic Arts which includes architecture and architectural engineering as well as civic, industrial and mechanical engineering. Other special schools are those of chemistry and pharmacy. In addition to these scientific schools the college maintains a School of Education to train the students who desire to enter the teaching profession. Furthermore the college recognizes that all students in agriculture or other courses desire a broad, well-rounded general education. For that reason there is maintained a central School of Science and Literature in which is included biology, english and philosophy, geology and mineralogy, mathematics, modern language, history, social and economic science, and oratory and public discussion. A student need not go elsewhere to get a broad, well-rounded out education to fit in with any vocation which he may wish to follow. Those who desire music or fine arts will find these well provided for. Those interested in physical training and athletics, whether boys or girls, will find adequate attention given to their wants. The library takes into consideration the needs of all. And like all other land grant colleges, military science is given its place.

Every former student and alumnus is looked to by the institution as its representative out among the people. We are interested in your welfare. We rejoice in your success. We want to help you even after you have left the institution. Call upon us to help you solve your problems."

The product of the Experiment Station is new scientific truths and useful information. The product of the Extension Division is more successful farming and home keeping. The product of the Regulatory Division is better health and general welfare resulting from the enforcement of the state laws. The product of the college as an educational institution is former students and alumni, and success in their after-life is the institution's greatest satisfaction. Educated men and women in all walks of life carrying out to all of the people of the state the best traditions and the best in learning the institution has to give,—this is the great central task of the agricultural college. Every former student and alumnus is looked to by the institution as its representative out among the people. We are interested in your welfare. We rejoice in your success. We want to help you even after you have left the institution. Call upon us to help you solve your problems. In turn the agricultural college longs for the support, the friendship and the best wishes of those who call her Alma Mater.

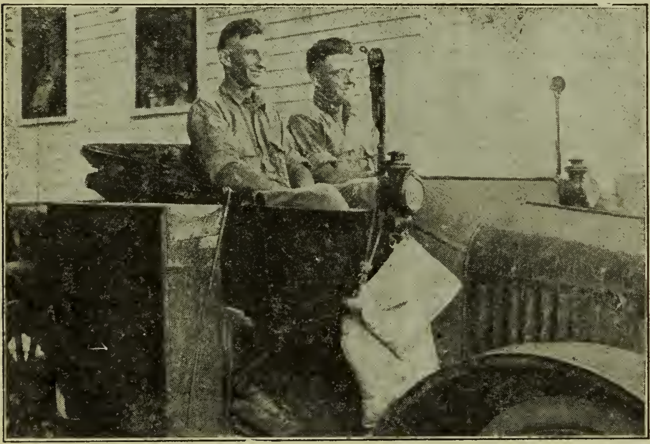
Picture Stories of Former Students

Hollywood, Cal., may boost of the corner it has on the nation's motion picture laboratories, but Casselton, N. Dak., is not hesitant these days in showing pride in its embryonic movie studio, originated and conducted by Angela Murray Gibson, A. C. graduate. Fargoans will see one of her comedies soon.



Chester A. Holkesvig, '11, is dry color chemist at the Lucas Paint Co., Gibbsboro, New Jersey. The picture shows a corner of his dopemixery.

History assures us that this is Harry Porter, former A. C. football man, as he appeared 14 years ago with his wife and first born.



This pretty little picture study shows Charles Struble, '21, and Spencer Buster, '21, on this summer's trip to California. Note the wardrobe box, and the bags which contained water for the desert trips, according to the testimony of the pair. A recent issue of the Maddock Herald stated that Buster, who has charge of Smith-Hughes in Maddock, "spent the week-end in Fargo." Struble is back at A. C.

Focus your reading glass on this corner of the Homecoming barbecue and you will recognize among others, from left to right: E. J. Thompson, animal husbandman; Dr. Sundro; Rex E. Willard, '08; Dean Keene; Culver Ladd, '20; Hutzel Metzger, '20; Theodore Thorfinnson, '21; L. R. Waldron, '99; Mrs. Walter McKim (formerly Grace Kotchian); Reginald Colley, '15; Walter McKim, '20; Professor Minard; Mrs. Mabel Hollis, '19; and Professor Shepperd. The homecoming committee consisted of C. A. Williams, '14; Dr. Frank Darrow, '12; L. R. Waldron, '99; Marjorie Lieberg, '19; Mrs. S. Oftedal; Theodore Stoa, '15; B. F. Meinicke, '99; and R. F. Colley, '15.

Bert Scott is telling a fish story down in Florida, but you will notice that he believes in furnishing witnesses and concrete evidence. He is engaged in real estate business in Fargo and is an executive official in the State Wool Growers' Association.

A. C. Athletic News

By Arthur Ostman, '24

North Dakota Agricultural college has suffered a string of set-backs during the 1921 gridiron season but the fighting spirit of a green squad has enabled the team to come through six games with only two defeats. It has been a nerve-racking season for Coach Borleske. Even the assistance of F. H. Watkins, former Fargo college mentor, has not made it possible to shape the green material into the powerful Aggie combination that has marked previous years.

The team started out by playing a 7 to 7 tie with Jamestown college, duplicating the feat of last year. Followers of the team were not greatly discouraged as it was the opening game of the season and the greater part of the team had been in uniform only two or three times. First among the set-backs came the injury to Hull, a 210-pound athlete who displayed tremendous charging power in the line. He sustained a "charlie horse" in the pre-season training period, and has been unable to play this season.

Then came definite word that Captain Rosatti had decided to go to Michigan and would be lost to the team. Further gloom struck the school when it was learned that Louis Duerner, one of the most dashing half-backs ever seen in the uniform of the Yellow and Green, would be unable to don the moleskins because of an operation undergone shortly before the opening of school.

The Aggies squeezed through the Aberdeen Normal contest with a 7 to 0 win but the performance of the team was not satisfactory to the coaches. Injuries hit the squad hard and heavy. Madsven, a veteran, was out of practice for several days. Bridgeford, utility man from last year, was laid up for nearly two weeks. Bridgeford came back wonderfully after his recovery, however, and played wonderful football in the University and Fargo college tilts. Lynn Huey is the one veteran to go through the season, fighting the whole of every battle without injury.

Moorhead Normal school proved an easier victim, the A. C. winning 35 to 0. The team played much better and students began to see some hope against the University. When South Dakota State visited here and trounced the Aggies 54 to 0 and Captain Latimer was injured things again looked bad but the Aggie enthusiasm revived and nearly 200 cheering rooters made the journey to Grand Forks, hoping that the team would battle to a close count with the Davies crew. The battle ended 38 to 3 for the up-state eleven. Aggie inexperience told heavily in that bitter fight. Almost the entire team was crippled and pounded in the fray and it was a badly tattered eleven that faced Fargo college at Dacotah field for the big contest of the year.

The Aggie victory came as a surprise to Fargo college supporters who really figured that their Hill school warriors had an even chance to win. A. C. players found their fight as never before in the season, and won in the second half on sheer fight and nerve by a score of 19-7. The Fargo college team was in perfect condition and the crippled Aggie crew fought like fiends to win. Dunham was perhaps the shining light of the contest. The fighting half-back, minus headgear, battered through the Fargo college team for continual gains. The contest ended with Captain Latimer back in the full-back position, so severe was the toll of injuries for the Aggies before the contest ended.

Defeat of Concordia college by Moorhead State Teachers at the same time as the Aggies defeated Fargo college rather reduced the standing of the team. Concordia offered strong opposition, however, and the team's last appearance on Dacotah field was preventedby a blizzard on November 12.

It has been a green squad that has fought the A. C. battles this season. Captain Latimer, Huey, Madsven, Bridgeford and Bruegger were the only letter men on the squad. Buchanan, second string man last year, earned a place at end for himself. The linesmen who have played during the season are: Berrigan, Meecham, Bridgeford, Latimer, Huey, Mares and Peterson. At the ends, Bruegger, Donovan, Gentling and Buchanan have performed. In the backfield, Boise, Bartell, Dunham, Burnett, Bohnsack, Gertson, Murphy, Gunderson have been the regulars.

Coach Borleske will still have Coach Watkins to assist in the basketball squad development. Hildre and Flem, center and guard, on last year's crew, are expected to return to school for the winter term. Trowbridge and Sivertson, forwards from last year, are in school and have not been in the football scramble so should be in splendid condition. Jack Kraemer, guard, Reis and Van Arnam, forwards, are the serious losses to the team. A host of material is expected to try for places on the team. No definite announcement in regard to the practice call has been made as yet, however, as both Coaches Borleske and Watkins are worrying over the last football games. The football team is scheduled to journey to Missoula, Mont., to play the University of Montana on Saturday, November 19th, as the final battle of the season.

Every once in a while we stop and wonder what the classmates who struggled with us in Chemistry, English, or Botany are doing," writes Bill Mortenson, '21, who is kicking up quite a little dust as leader of boys and girls clubs for Cass county.

"Are any of the gang doing the same things that I am?" he ruminates. "Are any of them making monthly payments on Ford couples, for instance? What are they doing and how are they living anyway? There are just some of the things we'd like to know about them.

"How will we find out all of these things? Once in a while of course we see their names in the newspapers,—when a fellow gets caught driving an aeroplane into the hoglot fence, for instance, when another gets 'pinched' for speeding, or for committing some other dark deed, but as a rule there is no way to keep in touch with the other fellow or other women. Some guys, to quote Ted Thorfinnson, '21, who is an assistant in farm accounting at A. C. this year by the way, are at least pretty good at keeping in touch with the other fellow's girl, I'll admit.. At any rate College and State is just the medium through which we can make these exchanges of notes and experiences.

"Yes of course you are too modest to send in anything about yourself, but you can sit down and send in something about the other fellow at any rate. Send in a snapshot, get a picture of his wife and family, or make a discovery of somebody that once attended A. C. Let's help to make the magazine a live wire. 'Short absence quickens love, long absence kills it.' Let's not kill the warm feeling for Alma Mater by steering away from the contributor's columns. Let's get into action. 'A good action is never lost, it is a treasure laid up and guarded for the doers need'."

With these few remarks Bill proceeds to relay a few notes regarding some of his neighbors.

Back in the 90's," writes J. A. Mc Glynn, collection department, North Dakota Retail Merchants Association, "the A. C. consisted of a few college students and a great number of short term Winter students we called shorthorns. As the years passed a few shorthorns of two or more terms became regulars, and in 1902 we organized the class of '05, with Arthur Peterson, pres., J. A. McGlynn, vice-pres., Miss Maria Caulley, sec., and with other members such as Carl Hulberg, R. M. Dolve, J. D. Nanson, Adolph Mickelson, Wm. Kennedy, and others I cannot now recall, whom you will find in the records and whom Dolve and others can remember.

"An old student have a tender spot in their hearts for their old schools, especially in the formative days at college, and to me even yet the seniors of that year were the most wonderful men in the whole world, and some of them have proved that I was not so far wrong, for in that class was 'Tommy' Manns, 'Art' Fowler, Lee Greene, 'Jimmy' McGuigan, Stewart Thompson, Fred Jenson and others.

"The history of the old '05 bunch would make interesting reading and let the students of today know what even a few months or years at the 'Old A. C.' did for us."

Home Coming Day Sets Precedent

By R. F. E. Colley, '15

Homecoming Day, October 22, was a fine success. While the committee put on a lot of work several weeks in advance, I think we really pried the former students loose, and those that were present seemed to have the time of their life. The barbecue was such a success that it was voted to make it an annual affair. The reception gave the alumni and former students a chance to meet our new president, and to judge from the remarks that were heard, he made a splendid impression, and former students will go back to their homes boosting for him and consequently boosting for a greater A. C. The pageant and dance were also well arranged and well received.

I certainly feel sorry for those who were not able to be present and more sorry for those who did not make the effort to be present. Half of the day's fun lay in the opportunity to get over into a corner with some of the oldtimers and to talk over things that occurred in our day. We naturally thought some things were done a good deal better in our day, but we realized and concluded that as time goes on so does our own Alma Mater progress.

More welcome than manna in the desert is the new 'College and State' to those of us who have strayed to distant fields", states Max Waldron '14, softly, as he nibbles a juicy orange and throws the rest away. He writes to T. E. Stoa, secretary of the Alumni Association from Crooked Lake, Florida.

"To continue this work systematically each class should have an alumni secretary who shall faithfully be appraised of and in return report such vital information as location of members, occupations, notable achievements, marriages and the consequences thereof (even tho it be twins), and obituaries, and may the latter list be blank for many years.

"However much we may deny it, most of us live on main street, and personalities overshadow principles. If "Bill" Jones of the class of '14 is in jail for bootlegging we want to read about that before we do flowery articles anent the influence of Greek verse in the W. K. Swiss Navy, or the fluctuations of wheat prices compared to the height of the Andes mountains. General articles like this one will be passed over, while we eagerly read the news that "Sweetie" Sunshine, '16, is married to the assistant oysteropener of the Red Front Cafe, because then we can chuckle and congratulate ourselves that "Sweetie" didn't treat US that way. There is a big demand for an alumni publication, and as our ranks grow ranker we can afford to issue a monthly or a quarterly which will contain not only personal items but records of tasks performed and ideals proclaimed, the sum of which will be an abiding witness to the under-graduates that the principles inculcated in college still guide us in our worldly work, and will so guide them. It will help us to keep the faith.

"Several former A. C. students reside in Florida and all seem well satisfied with their lot. A recent issue of a Miami paper devotes nearly a column to a description of experiments conducted by Scott Stambaugh showing that nitrogen-fixing bacteria when added to a compost of manure and Everglade muck will "make the Everglades come into new value beyond anything that has heretofore been thought possible", to quote from the article. Scott is also interested in a papaya orchard. What! Never heard of papayas? Come on down and try one, they're too delicate to ship to the Arctics.

"Curran Rourke, '16, ex-Drum Major, is a prosperous merchant at Lake Alfred. Like the rest of we Floridians he is incidentally in the real estate business.

"Herman Halland, '17, is a lieutenant at the big navy flying fields at Pensacola. Like the rest of the aviators he lives high.

"I am located amid the hills and limpid lakes of Polk county in the heart of the citrus belt ($1000.00 per acre, 25% down, balance in three years, or what have you?) and have the care of 1300 acres of citrus groves, owned by 130 non-residents, mostly Minneapolis people, and in the winter it seems like all of Minneapolis has moved to Florida (which of course we expect will happen eventually—why not now). Not having accumulated a million dollars, and for other seasons too numerous to mention, I am still free from entangling alliances—the matrimonial slip knot has yet to be tied. However, I continue to advise folks to marry early, just as I advise them to get up early on Sunday mornings.

At this point it is appropriate for me to again remind you that Florida sunshine, and climate is the elixir of life and a joy forever. (Mr. Editor—run that climate dope if you have to cut all the rest.)"

I should have written long ago," writes J. H. H. Alexander, '16, whose address is 915 Spaight street, Madison, Wisconsin, "but when a fellow is making a business of writing as a means of keeping the proverbial wolf at a respectful distance from the door—where he may serve as a self-elected watch dog, and keep the butcher, the grocer and the coal man away—he is much less inclined to pound the old Underwood for pleasure also. You know the feeling.

"Since I am not a seventh son born with a double veil—whatever that is—I make no claims of clairvoyant powers. Nor yet do I profess ability to give advice from a distance which will be of value to a man right on the grounds. Still, I suppose I must take a shot for luck.

"This thought occurs to me: A fellow has been away from his Alma Mater, its joys and its sorrows, for some length of time. He returns for a visit. He remarks: "Gosh, how the old place has changed! New students on the Campus, naturally. I expected that. But the faculty. Why, I feel like a stranger. New faces everywhere; old ones missing in the familiar stamping ground. How come? Say, Mr. Parrott, I feel like Rip Van Winkle looking for an eye-opener. Am I honestly that venerable, that antiquated?'

"Seriously, that was my reaction. I felt so forlorn that when I saw I. W. Smith I hailed him from a block off and almost wept salt tears of unrestrained joy on his lapel. Consider, too, that in the constellation of mathematical stars I was a very dark bit of sky, indeed; that therefore I conferred with the aforementioned gentleman on request only, and you will understand that the transition from math. prof. to friend is some jump. I registered the same sort of pleasant reaction on seeing Shepperd, Shalk, Thompson, Parrott, and others of the old guard, but naturally the feeling was less marked as with them I stood a bit better than with 'I. W.'

"Now, let's look for the 'Why?' of this mental state. In the six years that I have been away from the A. C. I have hailed for the Green and Yellow frequently and lonesomely, as any good alumnus will. But I have most sadly lost touch with the old school. It strikes me that through the College and State a lot can be done to keep alumni in closer touch; to add to their fund of information frequently, and thereby drive away and forever dispell the illusion that the home fires are no longer burning, that in the new order of things the old familiar warmth, whether of heart or hand or hearth, still lingers. Fond memory, often refreshed, is to me the one and only sure road to loyalty.

"Now for a suggestion, humbly offered: I have spoken of the 'rogues gallery' of new and unfamiliar faces in the faculty. Let them make their informal and unofficial bow to us through College and State. For instance, I know that Professor Walster is in charge of soils work. I knew him as the one bright spot in my soil chemistry course while a student in the University of Wisconsin. He somehow managed to plant his ideas and his clear interpretations of the subject he taught, and which I most supremely disliked, in the intensely arid space from my ears up. Two years later, without reviewing the subject, I passed a stiff soils examination at the A. C. and got my credit. Other soils profs at Wisconsin had the same chance to test the extent of my immunity; they failed.

"Why not then try this: List the new faculty members, get their photos, have them make their bows each month, and give a little story covering each. I'm sure it would be the means of making a lot of use feel more at home on the campus upon the all-too-rare occasions of our visits."

In the last issue of College and State", writes Willis Boots '21, who grows daily more rotund and reverend in A. C.'s English department, and who labels this news letter 'Hooray for the Boys', "some well-meaning but misguided person, evidently of the feminine persuasion, set forth a long list of last year's sweet girl graduates with their present activities, but neglected utterly to mention the harmless, necessary male members of the class. Being numbered among the latter, I realize the inferior interest inherent in his group, but nevertheless I venture humbly to offer a few bits of information concerning various ones of said innocuous masculine beings.

'To begin with, let's take the masters—masters of science, if you will. There's R. Dell Stewart—it is said he never would put down his first name because his daddy yclept him Reuben—well, anyhow, he's bossing Smith-Hughes work at the LaMoure High School. He has a Dodge car and occasionally dodges back to his old haunts in this locality.

"Ted Stoa, Stewart's partner in crime, is still at A. C., carrying on investigational work of diverse sorts. He has just published the results of his trials with spring wheat and promises soon to divulge the results of sundry other trials.

"Now to leave the Masters and come down to the poor saps who received only the plain B. S. degree:

"First, there's Wallace Berg. He's out on his farm at Courtenay, industriously cultivating it, what time he is'nt in Fargo, assidously cultivating—oh, you know.

"Spencer Buster took a long trip to the coast last summer, in a Henriford, with Charles Struble for chaperon. Neither one of them saw anything that looked better than North Dakota, so they came back, Charley to take up a graduate course at A. C. to replenish his stock of knowledge while Spencer inflicts on the innocent students at Maddock what he learned from Charley during the trip.

"Monroe Kirk decided that Kirk, Jr., was wasting entirely too much time in feminine society, so he took the lead out to the farm at Devils Lake, as chief assistant.

"Ol' Ham Larson is now being looked up to and is acquiring a look of additional polish in the Vet department at Kansas A. C., Manhattan.

"After the memorable reception tendered him and his bride last spring, Percy Lowe firmly concluded that Fargo was no place for him; consequently, he's now a freeholder and tiller of the soil at Frazee, Minnesota.

"Bill Mortenson has developed into Boys' and Girls' Club Leader for Cass County—note all the capitals. He can't pass a bunch of urchins on the street corner without 'organizing' 'em, and the number of trips he finds it necessary to take to nearby village schools is really amazing. His second coupe of the season is rapidly approaching utter senility.

"Roy Reis, of athletic fame, can be seen most any morning sasshaying down toward Fargo High, where he teaches science and coaches aspiring young athletes.

"T. N. T. for short, and Theodore Skulason Thorfinnson for long, has gone into cost accounting and is finding out the cost of raising everything, from chickens to mortgages. His headquarters are at A. C., but he's like the proverbial flea—now you see him and now you don't.

"Elmer Dynes just naturally slid into the mathematical end of the teaching profession at A. C. For the most part he conducts himself in a manner befitting a prof and a gentleman, though it is said that he occasionally revolutionizes Professor Smith's whole department with some new and startling idea.

"After numerous conferences, Oscar Jordheim and Sid Sorkness reached the decision that two such stellar splendors could not be appreciated in close proximity, so Sorkness trekked out to aid the county engineer at Hillsboro, while Oscar did likewise for the city engineer at Fargo.

"Of course, the fact that a former unit of A. C.'s English Department has transferred activities to Bowbells, has nothing to do with Leigh Thornton's pedagogical pursuits at Williston. It is a mere coincidence—besides, it's a long way across country.

"Bob Mares has become an essential part of the Engineering Department at his Alma Mater. James McLaughlin also spends there what time he can spare from the 'Chicago' and the 'Nestor'. He's chief high mogul in the engineering branch of the Smith-Hughes work, and from his air of dignity you'd never suspect that underneath he's the same old Mac.

"After toting off his sheepskin in Science and Lit last year, Larry Bohnhoff came back to get another one in C. E.—that means Christian Endeavor, of course.

"Archie Waldie's peculiar mechanical genius now manifests itself in inventing new names of torture for his long-suffering students at Wishek.

"Bradley Tillotson is another of last year's class who is now out for a master's degree.

"Ralph Baker is putting his training in chemistry to a practical use with the Acme White Lead and Color Works, at Detroit, Michigan.

"Immanuel Johnson, otherwise 'Dutch', went along to the same place, just to keep Baker from getting too lonesome.

"Ercell Frost—'Freezy'—went out to teach in the Ellendale High School. He heard that the Normal and Industrial School was located at Ellendale, and he wanted to meet some people who could be both normal and industrious at the same time.

"Ralph Matters has also ventured into educational fields. His address is Hebron, this State.

"It will be noted that several men are missing from the roll-call. Nebulous rumors are afloat about many of them, and they will probably be traced to their lairs before the next issue comes out. If you know anything definite about any of them, let the editor know."

ALUMNI IN MONTANA

"No doubt that portion of the N.D. A. C. Alumni who wittingly or unwittingly are trying to enjoy life in the artificial environment of more conventional and congested regions," writes A.J.Ogaard, extension agronomist, State College, '13, Bozeman, Montana, "are somewhat curious about the present status of that brave and intrepid band of A. C. grads who are pioneering in one field or another over in this broad expanse of refreshing territory embraced within the boundaries of the Treasure State.

"In my continuous wanderings over Montana, I come in contact with a number of the alumni, but of course, I do not see all of those now in the state. In this chronicle, I will confine my statements to persons whom I have met.

"Walter Baumgartel, '16, spent a portion of last winter in the Bitterroot Valley, making a community survey for state and federal agencies.

"Barbara Heidner Potter, '16, is now residing in Bozeman and is the well contended wife of the State leader of Boys' and Girls' Club work.

"At Chinook, which boasts of the lowest temperature recorded in the United States, we find M. A. Thorfinnson, '17, who claims the climate is just Icelandic enough to suit his inherited nature along this line. 'Matt' is in double harness and is a daddy and a busy county agent.

"Proceeding eastward along the G. N. we often see William Stapleton, '13, county agent at Malta. 'Bill' has developed not only an unusual ability along organization lines but also a waistline of considerable perimeter. His avoir-dupois has not interfered with his pep and his rating is mighty high. Bill also responds to the nickname 'daddy.'

"Continuing toward the N. D. line, we are very apt to run into county agent M. E. Stebbins, '16, at Glasgow, unless he is stepping on the gas in his strenuous efforts in behalf of his constituency. He is the dean of Ford skinners and covers more territory on less gas and rattle, than any of his Extension Contemporaries. Murray still remembers his first day at college when he turned over his last fifteen dollars to me for a military uniform.

"A long ride on a couple of 'dinkies' and we are greeted by Dean Mendenhall, '14, who still retains his super-enthusiasm for doing things. That speaks well too when one but considers the siege of dry years his county has just passed through.

"Fred Birch, '06, is encountered on train coming or going from his contracting headquarters in Great Falls. His activi-

Among Our A. C. Folks

Walter Bayard, '14, after taking his medical training at Northwestern University has taken over Dr. Campbell's practice in Fargo. Walter is an eye, ear, nose and throat specialist.

George Hanson, '20, formerly instructor in Agriculture at the Maddock State Agricultural School, has accepted a position as county agent in Potter County, South Dakota, with headquarters in Gettysburg.

"I was truly much pleased with the number of the College and State, which came to my desk a few days ago," writes Miss Katherine Jensen, '04, from University of Idaho, Moscow, Idaho. "I think I have read every word from cover to cover. We have long needed a medium of this kind to keep the alumni in touch with their Alma Mater. If an article now and then would help to keep the good work moving on, I shall be pleased to do my part."

Robert Reed, '95; C. O. Follett, '98; B. F. Meinicke, '99; Art. W. Fowler, '01; L. B. Greene, '01; James McFingan, '04, were a few of the older grads who were present at the annual home coming day, and who by their presence helped to make the day more successful.

A. C. Anderson, '12, is connected with the federal soil survey. He spent the last summer in northern Wisconsin.

Hal. Pollock, '14, who for the past two years has been senior instructor in agriculture at the army vocational school, Camp Grant, Illinois, returned to Fargo this fall. Hal. was also responsible for the management of the large farm maintained in connection with the army school.

Deaths.

Mrs. E. G. Boenke, formerly Florence Lane of Fargo, A. C. '16, died October 7, following an operation in a local hospital. Following her graduation, Mrs. Boenke was a teacher, and was married last July to Mr. E. G. Boenke of Enderlin at the summer home of her parents, Shoreham, Minnesota.

Henry Lee, former student at A. C. and a prominent and succesful farmer of Fingal, Barnes county, died of appendicitis in a Fargo hospital. He was a brother of Carl Lee, '97, former A. C. football star and now superintendent at the Gridley Dairy Co., Milwaukee, Wisconsin.

Marriages.

Miss Josephine Henrich, Alton, Iowa, to Raymond Lubbehusen, '21. Dr. Lubbehusen—"Luby" in other words—is now assistant veterinarian at the Agricultural College. His address is 1123 College St., Fargo.

Miss Elsie Sueltz to William W. Barr, at Bismarck, September 7. Bill is now teaching at Harvey.

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ties cover an extensive territory and most of our larger cities have some Birch paving.

"Reginald Dynes, '11, is hotel lobbyist for the Northern Pacific as well as attending to the lands and leases of the corporation. 'Reg' is the same good fellow who is never going to suffer from nervous prostration or kindred ills.

"R. B. McKee, '16, County Agent at Kalispell. If one can judge from his portly makeup and beaming countenance 'Mac' is doing fine. His days as a basketball star are matters for the historian, however.

"C. M. Yerrington, '14, is still interested in Y. M. C. A. work in addition to his county agent activities in the Miles City section. Carl has been compelled to discard some sanctimony since assuming his duties as secretary of the County Agent Association but he can still warble as of old.

"E. W.Anderson, '14, is temporarily out of the state taking special work in economics and marketing 'Andy' is a farmer and as a county agent proved to be a veritable champion of the farmer.

"Geo. Gustafson, '14, crossed the state line last winter and as is usual in such cases, could not go back and remain happy. You know Professor Arnold made us a flying visit last spring and his determination to make use of the return ticket he had foolishly purchased, is the sole reason he is back in Fargo again. 'Gus' is now busy getting settled in a town located in the mountains and is proving to be a capable County agent."

Collegiate courses showed an increased fall term enrollment of 36 percent, according to A. H. Parrott, registrar. More than 160 freshmen were enrolled in a total of 565. Registrations for the special industrial courses which opened on October 17 total 140, although registration is still in progress. Some 150 to 200 more students are expected to enroll when the winter short courses in agriculture and engineering opens, January 14.

A Study of Physical Characters and Some of Their Correlations in Bromus Inermis, L. R. Waldron, bulletin 153.

Keen interest is being manifested by several hundred young people in some 20 counties of North Dakota, in plans for the Achievement Institute to be held at the Agricultural College, December 19 to 23, at which more than 125 boys and girls, project winners in their local club work, will gather under a leadership elected by themselves for a week's program of educational and entertaining features.

Purebred seed grains grown in North Dakota are to be given a special trial in Czechoslovakia. Shipments were recently made of purebred barley, oats, and flax, under the direction of Dr. H. L. Walster, agronomist at A. C., following a request for the seed grains by an agricultural attache of the Czechoslovakian consulate.

The Architectural Society, student organization, recently elected officers for the coming year: Paul Olsen, Sanborn, president; G. A. Hagan, Bowden, vice-president; Alexander MacDonald, Edmore, secretary; J. J. Howe, Edgeley, treasurer. Speeches by well-known out-of-town architects take up a prominent part of the society's program at the meetings. With a one-third increase in enrollment of students in architecture this year, there has been a similar increase in the organization's membership.

H. S. Bacheller, graduate of the College of Agriculture, University of Minnesota, and a farmer of 12 years experience, was appointed county agent for Hettinger county during September, to succeed M. E. Adams, who left to accept an instructorship at the Lisbon, N. D., high school.

(*Continued from Page 1*)

In a state whose industry is predominately agriculture, the needs of agricultural and home economic training as well as industrial vocational education offers a field of exceptional opportunity in the development of this particular work.

Although the high schools are as rapidly as possible endeavoring to meet the requirements and are establishing full four year courses in agriculture and home economics, it will remain for the short courses of three, four and five months for a period of one, two or three winters, for short unit courses of at least 44 hours, or for four, five and six weeks duration, and for evening school courses, to accomplish the best work for the first few years. A large per cent of our young people, we must remember, do not finish more than the fifth or sixth grade in the common schools. Likewise, a large proportion of the young people who are intensely interested in vocational agriculture and home economics are unable on account of a lack of finances or time to be away from the home during the growing season. This necessitates the short dull season courses as well as the short unit courses. In many instances this condition is really a blessing in disguise, for it facilitates the supervised home-project which every student in Smith-Hughes work must carry on for a period of at least six months each year.

The supervised home-project, supervised by the instructor, calls for a twelve months term of agricultural instruction in order that the instructor may not only teach the principles and science of agriculture, but may also mingle with the young men on their home farms, get acquainted with their parents, and see that they carry out a home-project illustrating problems studied in the class room. The project is done on a farm, and in carrying it out a thorough-going educational process is involved. The home-project may be the usual work of the boy in helping to cultivate and harvest the potato crop or in doing other farm work. The boy or girl should make a business problem out of the project and in the majority of cases the student should be allowed to keep the profits as a reward for his work and as an incentive to intelligent action.

Under the home-project plan, the instruction is adapted to the kinds of farming prevalent in the districts where the work is established. The projects are thus subject to the same obstacles encountered under the farming or home conditions in the given district, and are also aided by the influences in a state which seeks to improve its farming.

The force and value of the work is felt by the parents. The struggle with realities, especially, wins their admiration and respect. They feel that the agricultural instructors are competent and unafraid.

The plan offers the boy, eager to quit school to work upon reaching his fourteenth birthday, a strong incentive to continue in school; because it undertakes to make him an earner while still a learner.

The outlook for Smith-Hughes work in North Dakota is bright. Because of its natural agricultural resources North Dakota offers an exceptional opportunity for the future in Smith-Hughes vocational agriculture and home economics instruction.

At the present time North Dakota needs to be impressed with an appreciation and enthusiasm for agriculture and rural life. For this end the courses utilize agriculture and the mechanic and domestic arts purely as educational material, absolutely on a par with greek and mathematics. The Smith-Hughes courses tend to overcome the idea that agriculture and home-making are unworthy callings. Agriculture must be raised to as dignified a position as medicine, law, or engineering. Home-making must be looked upon as a profession by the girls who go out from the secondary school. The schools of this state will never become efficient in the highest degree, until the basic arts upon which the future welfare of the state and nation depends, are given their proper place. Give as much consideration to the man who does things as is now given to the man who talks about them, and we shall not have to complain of agricultural conditions in our state. This is the problem which the Morrill acts, the Nelson amendment of 1907 and the Smith-Hughes act of 1917 has set out to solve, and just as the Morrill acts and the Nelson amendment have accomplished great things for college students, so does the Smith-Hughes work endeavor to provide a similar opportunity to young people of high school age, regardless of their previous training,—providing they are at least fourteen or sixteen years of age and mentally capable of doing the work.

Letters from a Freshmen—2

Dear Slim:

Things is moving right along with me, Slim. I don't know yet just where I'm at but I'm on my way believe me. Note my new address. The cockroaches had a habit of having their military drill and setting up exercises just about the time that I was going to bed, and for fear that I might be a pretty disturbing factor in their little fun, I hunted me up a new hangout.

Open season for us new guys is at hand. Perky, who is my new side-kick that I'm trying out on probation, was going to be real hardboiled and woe to the Soph that looked anything but darn friendly to him, but Perky has changed his mind finally because some days ago the value of wearing a green cap was so well impressed upon him by a gang near the administration building that he is only fairly comfortable when he's walking and thinking of something else. School is coming good too. I'm taking some psychology and the doses are plenty big for me too. Psychology, Slim, is all about the brain. If your Dad tells you that you got to fill the woodbox three times over when you was just going out with your bunch to have some fun, well you really want to fill that wood box anyway. That's psychology. When I learn French what I learn is stowed away in one special reserved seat in my brain, and if a doctor or a veterinary surgeon was good enough he could carve the French right out of my brain but I think he would have an awful time on me because when I study French it don't seem to register up in my checkroom at all and the helping that a doctor would get by carving out my French would be unusually diminutive. A while ago I heard one of the guys say that there was going to be a smoker at the Theta Kappa house or some house of that kind and I met one of the fellows from that house also and I was enthusiastic. I told him and his partner that I was glad to meet them and that I'd look them up some day at their house but they haven't had me over yet. You bet I am enthusiastic because that's the way to be, Slim. The president here said so also in a speech he gave some time ago and anyway I never could see these guys that walk around here that looked awful hard and tried to look rougher than a political speaker in North Dakota.

Slim, they keep their girls caged up here after about 6 o'clock at night over at Ceres Hall. I don't know why that is because all except three or four look perfectly all right and harmless to the average pedestrian. But then the library is fortunately at hand and so the rules are not so bad. You know, Slim, I saw something in a library a while ago that said something about Carnegie and P. D. M. and I guess that meant Patron Date Maker because that is one of the greatest things he ever did when he built us some libraries. However, it is all done under competent supervision. I read the newspapers in the library, however. You know our English prof had something to say about newspapers in the U. S. and he told about Horace Greeley who besides saying young man go west was the old time journalist that went at it with bill and hook as the book we read in English says but Slim if Horace could only see us here in North Dakota now he would feel more than at home because we believe in the good old fashioned newspapers that says what comes into the editor's heads and that busts editors' heads for each other as a stimulant to future endeavor.

Football has been in the air for some time and there is much pep as there should be. A few guys that walk around here to save funeral expenses don't show much enthusiasm about it but then there is always some students that are so darn afraid that they're going to support something that they keep their eyes two feet in front of them and never dare give something around here a regular boost for fear it will be used as incriminating evidence against them at some murder trial. Them and teahounds is hopelessly in the minority in this college believe me because most of the guys is regular ones. Teahounds Slim is a special kind of students and that needs an explanation. You know there are two kinds of village cut-ups as our science prof would classify them, one of them is the one that always ties tin cans to street cars, sasses the teachers, saws wood when they shouldn't, and finally when many of them is forty years old or so and sees they haven't done anything while others have, they become sour on everybody and things in general except themselves according to the little six-word saying we had in the army which I won't repeat for lack of space. Well there is another kind of village cut-up. He is a knock-out in general and I guess a lady-killer in particular who is great on matineee dances, bandoline, lady-like appearance, and several other thing but anyway he is a cut-up who becomes a teahound when you take him out of his village and put him in a college where he finds studies interfering so seriously with his outside activities. He don't like football is great on saying sweet nothings that people has been saying for the last two years and other items which take too long to tell. The faculty is a good bunch they seem to believe in the stimulating value of studying and they are usually kind and fatherly unless they play volley ball together in the Y. M. when the fighting instincts of their cave-man ancestors crops out and they do more lecturing, quizzing, and gassing than the crustiest of them do in the lecture room. But they get over it all right and I guess they get some exercise from it too which is the supposed reason they play it.

Perky says you don't want to knock very much you want to be positive he says and Perky knows believe me so here goes. The former students and alumni had a shindig and jamboree here lately and she was some party from the standpoint of the by-stander even. The oldtimers has some real pep all of which goes to show that when you have a really good school the flavor lingers as it should and will do more so right along. Well Slim drop me a line some day, I've dropped you a wicked one this time but you know what I mean all right.

Your friend,
RED.

There are no dull subjects, there are only dull writers.

Vocational Education and Land Grant Colleges

(*Continued from Page 3*)

like? What style of architecture is in style now? The so-called English domestic seems to have the preference, though we still see an occasional colonial adaptation. The English domestic type of residence has a very steep roof, usually broken up with numerous dormers, side walls only one story in height, the windows arranged in groups, and an irregular shaped plan. Stucco lends itself very well to this type of building although brick and shingles are being used with very good results.

While the above points may appear to be quite a radical departure from the time honored customs in residence design, yet the great number of examples found embodying these changes should cause the prospective home builder to consider carefully, lest he have just a house rather than an up to date attractive home.

BLOWS AND EXCHANGES

* * *

How are the station's onions growing? Strong!

* * *

Ephe Swan says the funniest guy he knows is the bird that looks hardboiled, talks hardboiled, and acts hardboiled.

* * *

When hardboiledness is needed to do things, says Ephe, it's great stuff; but gol' when it's this here usual crusty veneer of hardboiledness with the yoke a conceited shimmyin' affair—chuck it. It ain't getting by.

* * *

Why some specialists die young: "Dear Gentlemen. Please send me an agricultural book. Yours truly."

* * *

When there is nothing more to be said, moans the Kansas Industrialist, some fool always up and says it.

* * *

What, we ask you seriously, does a freshman think about anyway?

* * *

Famous last lines:
"Well come up."
"Yes you come down."

Cost estimating schools were held in more than 20 counties of the state under the direction of Rex E. Willard, economist, and Hutzel Metzker during the period November 1 to 23. Cost of productions for wheat and potato crops were handled.

COLLEGE STATE

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School of Engineering's Reputation Grows

By E. S. Keene,

Dean, School of Engineering, N. D. A. C.

Land grant colleges were organized for the purpose of giving scientific instruction in agriculture and the mechanic arts that apply to industry. The object was to give opportunity for their intimate study and to elevate their standing in professional dignity. These two great branches were recognized as fundamental to the prosperity of the nation and any variation in the success of either immediately effects the other. That the land grant colleges have succeeded in working a revolution in scientific college education is illustrated in the phenomenal increase in technical education. In 1862 when the Morrill act was passed there were no means for the average individual to acquire an education in either agriculture or technical engineering. Today there is opportunity in every state for training in many branches of agriculture and mechanic arts for all who are ambitious.

Mechanic arts in the land grant colleges has been construed to mean all industries and every form of engineering, even marine engineering. In the North Dakota Agricultural College from its foundation, mechanic arts has been recognized as one of the two general institutional divisions. Beginning with the first classes and continuing to the present, general shopwork, vocational training and technical engineering have had their place in the courses of mechanic arts. At present, technical courses are given as architecture, architectural engineering, civil engineering and mechanical engineering. For those who are unable to complete technical courses, industrial courses are offered in power plant engineering and drafting and building. In addition vocational instruction in automotive machine and tractor operation is offered for 12 weeks each winter. The shops have always been an important factor in the work of the short course student. Many young men have received in a few weeks such practice in forging as has benefited them in their farming as no other form of instruction, while others have found thru technical training opportunities that has placed them among the foremost in the engineering world.

The development of land grant colleges has demonstrated the excellence of their courses. In the sixty years since their establishment there has been ample time and opportunity to show by the accomplishment of the graduates achievements that are second to none. Each institution takes pride in the quality of its instruction and is ever anxious to increase its facilities. Faculties are recruited from the leading institutions from every part of the country. The colleges are endowed by grants of land, by federal and state appropriations and are in a position to improve constantly their methods of teaching. The object of each is service, not to a particular class but to all citizens who desire the advancement of agriculture and the mechanic arts in any of its branches of industry.

Recognition is slow in coming to any radical departure from established custom. In methods of education the land gran colleges opened, not alone, new avenues of education but improved means of its presentation. The success of their graduates is the compelling influence which awakened the interest that they are now accorded. The courses of engineering education in the North Dakota Agricultural College have shown by their results that they satisfy the preliminary training necessary to successful practice. Each year young men go long distances in search of instruction to be found at home. The North Dakota Agricultural College is one institution of a great technical educational system. There are branches in each state placed there for the benefit and convenience of its citizens that their sons and daughters may be educated in the greatest measure.

The department of mechanic arts now occupies, wholly or in part, four buildings, the two shown in the illustration being the most important. Since the origin of the college it has increased its building facilities once in each three years. During the present year its requirements are again approaching capacity. Its students are enthusiastic, earnest and energetic. The engineering societies and organizations for the formation of engineering education are ambitious and progressive. The faculty is composed of specialists and the work demanded is excellent in grade and in quality. The alumni, those who show the result of training in actual practice are almost without exception in positions of responsibility and of character suited to the capability of technicians.

Mechanics arts in North Dakota Agricultural College has shown by its graduates the excellence of its courses. The department recognizes the possibility of much improvement. At the same time it recognizes the proven worth of its program and the part it has taken in training young men for the greatest usefulness and value in citizenship.

"If all is well next June will find my name in the list of the graduating class of nurses from the Bismarck Hospital," states Mabel I. Pendray, '15, after she offers a little bouquet, to wit: "A little volume like College and State is worth having and worth receiving." Incidentally a recent issue of the Bismarck Hospital Messenger contains almost a column of verse contributed by Miss Pendray.

"I wanted very much to come to Homecoming, but was unable to get away at that time," the letter to the registrar continues. "I hope to be with you in 1922. I am anxiously awaiting the next issue of College and State.

"Olive Walters, H. S. '17, is a graduate of this hospital, and is here on private duty.

"Esther Heidner, H. S. '17, began her nurses training here, and is completing it in Minneapolis.

"Lloys Wildfang, '15, is married and is farming near here.

"Carl Oglesby, formerly Ruth Strande, '15, lives at Dazey, N. D., and Mrs W. A. Foraker, another one of the H. M. '15 class, may be addressed at Virgella, Montana.

"I met Gladys Plath a few days ago. She is teaching here in Bismarck.

"Philip Dawson, '16, has been managing his father's farm at Ely, Iowa, but is about to open a garage at Wyoming,—not the state, but a town in Iowa.

"Stanley Nichols, '16, is married and lives at his old home at Ypsilanti, N. D."

State Leans Toward Diversified Farming

By J. H. Shepperd,

Head, Animal Husbandry Department, N. D. A. C.

What are we going to do, is a question that is being discussed on many farms in North Dakota this winter. It is a great natural blessing in this state that winter halts us in our mad rush once a year and makes us take time to think it over before putting in another crop. The past three bad years in our Missouri Slope country in particular, and all over the state to a little lesser degree may prove to be a blessing in disguise. It is like loving a boy with a shingle, however,—not a pleasant lesson to take.

The adversities of the past three seasons and the bad markets which have fallen to our lot have together emphasized the need of better methods, better work and the value of live stock more than a regiment of good speakers could have done traversing the state during a similar period. The conviction on the part of the rank and file of our folks that a diversified system of farming is necessary and that a good grade of productive live stock acclimated if possible must be kept on the farms of the state is the greatest stride forward that we have made during the twelve months that are closing. It has every appearance of being an honest to goodness live stock conversion and not the death bed sort with which we have been frequently overtaken before and from which we have yuickly slid back.

"A hundred thousand breeding ewes wanted"—would be a good slogan for our northeastern three valley counties. Not but that other counties need sheep and might profitably go into them but the counties which I have named have grown sheep, learned to use them as profitable soldiers in a hard weed fighting battle which they were winning before the war played hob with wool prices.

One of the worst mistakes that is commonly made is to "go into" and "go out of" a particular kind of live stock and the man who does the going usually pays all the moving expenses. He is most likely to buy in when prices are high and all the world is stimulated and sell out when prices are low and all holders are discouraged. Far pastures look greenest, is an old saying and many a buyer seems to believe that live stock purchased in the next state or at least in a neighboring county is better than John Jones is offering on the next section. That is often true, of course, but sometimes it is only "distance lending enchantment." Last fall I was on the South St. Paul sheep market and learned the following true story:

Two South Dakota men living near the Montana border line dickered over a band of ewes. Jones wanted a flock of ewes and Smith had a flock for sale. They talked over making a deal but finally lacked twenty cents a head of agreeing on terms. Smith shipped his ewes to South St. Paul and consigned them to a friend of mine, a sheep salesman in the South St. Paul yards, to sell. Jones went down to South St. Paul looking for the ewes he wanted for his farm. Jones by chance approached my commission man friend and inquired about ewes of the grade and type which he wanted. He was shown Smith's ewes by the commission man along with a few others and bought them. He paid twenty-five cents per head more for them than Smith asked for them at his home in South Dakota. No one of the three men knew anything of the deal until it came to making settlement for the sheep, when the story which I have just told was unraveled. The freight charges were heavy last fall but as each man paid half of them I suppose that could be called "a horse a piece." It is unusual for this thing to occur with the same individuals and bands of stock involved but it illustrates a wasteful principle which is based upon a mistaken idea.

The man who has one or more good sized brood mares will in my opinion make a serious mistake if he does not set out to produce a work horse ready for market seven years hence. All signs point to a good demand at that time.

Dairy products have held up in price better than any other farm commodity and it, therefore, is not strange that owners of dairy cows are holding them tenaciously.

The land in North Dakota grows older year by year and hence comes to a place where it needs stable manure, clover and alfalfa roots worse and worse. With the passing years there also comes the army of weeds which infest each old community. It, therefore, becomes more and more necessary to change to cultivated and heavy quick growing crops which check these destructive pests. If the corn crop overrun the silo on a good year provide another silo or two—crops are good and you can afford it and remember that the bad year will surely come again and when it does silage in stock is like canned goods in the cellar; when the matron wants to set up a meal it takes care of the emergency.

A. C. PESTLE WIELDERS COVER NORTH DAKOTA

Go into any town or city in the state containing a drug store, and you will find almost without exception a former student of A. C. to greet you. As far as pharmacy is concerned the representation of A. C. throughout the state is quite close to 100 per cent. Practically everyone of the former students of this school have made good in their chosen calling, either as proprietors of their own stores, or in positions of responsibility as managers, dispensing pharmacists, and so on. In the few years that have elapsed since they left this institution most of them have built up successful business enterprises and have made themselves a power for good and progress in their respective communities.

Thanks to the co-operation and perspiration of Dr. W. F. Sudro, head of the School of Pharmacy, this summary of the activities of our graduate pharmacists is made available.

The graduates from the two and four year courses of the School of Pharmacy beginning with the class of 1904 up to and including the class of 1921 number 103. Of that number five are deceased, twenty-six live outside the state, and seventy-two reside within the state.

Of the ninety-eight living graduates, eight are women who are married and are living at home, thirteen are engaged in pursuits other than pharmacy, and seventy-seven are practicing pharmacy. Nine of the graduates engaged in pursuits other than pharmacy are practicing callings closely allied to pharmacy, such as medicine, dentistry, and chemistry. Only four graduates are following pursuits irrelevant to pharmacy. Of those engaged in pharmacy, forty-two are proprietors or managers af stores and thirty-five are engaged as clerks or managers of dispensaries connected with drug stores or hospitals.

The School of Pharmacy, since its inception, has educated approximately five hundred men and women of this state, including those registered in the so-called short course, which has been discontinued, and those registered in the longer courses. The school has enjoyed a healthy growth as is evidenced by the fact that the class of 1904 contained one graduate while the class of 1921 contained sixteen graduates.

Included in the list below are the names of some of the graduates and former students, together with their activities:

Roy G. Cook, '05, is proprietor of the Cook Drug Co., Fargo, N. Dak. Roy's store is recognized as one of the best equipped stores in the northwest. Both a retail and wholesale business is carried on.

Dave Lofthouse, '05, is manager of the Cook Drug Co. Dave has the reputation of being one of the best informed men in his line.

Fred W. Hall, '06, of Halliday, N. Dak., has built up a prosperous business and in partnership with his brother, Dan Hall, a former student, owns a store at Halliday and one at Beulah, N. D.

Melvin A. Baernstein, '09, is associated with the National Lead Co., Brooklyn, N. Y., as chemist.

Palmer Foss, '11, former star A. C. athlete and known as "Polly" is possessor of one of the most thriving drug stores in the state. Former students of ten years ago remember that "Polly" was one of the hardest working members of A. C.'s ath-

(Continued on page 8)

Art Studies Touch Your Every Day Life

By KENNETH KUHN,
Department of English, N. D. A. C.

Utility is the watchword of the department of art recently enlarged and brought into its own under the direction of Miss Evalyn Riebe. Subtle bits of appreciation are thrown in here and there, and a sane desire is revealed to create and to arouse latent instincts that help to build standards of good taste. A survey of the courses offered illustrates the value of the department in a more vital way.

As a prerequisite the introductory course for high school students is highly desirable. It aims to stimulate and encourage a sense for art appreciation. Only the meagre outlines are followed, but the occasion for planting the germs of good taste is grasped wholeheartedly.

The real function of the department is best expressed in the work offered in the college department. Here the dual purpose can be clearly differentiated. The work falls naturally into two logical classes: the courses that are given as a part of the required work in the home economic curriculum; and the courses that may be considered as elective. Both groups are distinctive in character yet inseparable in their ultimate objective which is essentially the deepening of insight and the refining of discrimination.

Practical intelligence and uses are not everything. Art suggests joy of craftsmanship, realization of ideals, and possibilities. More than 100 students are now enrolled in art classes at the college.

The preparatory course in the home economic division is elementary. Its name, freshman designing, need not be misleading, for its business is primarily the business of formation. The latent possibilities of the freshman are drawn to the surface and subjected to the process of refinement. In fact, it is a sound emphasis on the principle of vision as a practical guide that makes the course a vital and satisfying element in the careful preparation of the "worthy helpmate" type.

The two advanced courses that follow relate themselves to that special feature which is most dear to every worthy citizen, the establishing of his bank account. The one which is designated as a course in costume design is open to home economic juniors. Practice in the care and selection of dress is made not merely a matter of household economy, but a matter of taste and attractiveness. The other course holds a place of importance in a similar fashion except that it concerns itself with home decoration instead of personal adornment. The emphasis is placed on the law of selection, not ignoring the principle of utility. Questions of arrangement, of effect, and of influence are stressed with the purpose of making the home beautiful. New appeals are tried out. Variety in the decoration schemes is suggested. And so, in the process of homemaking, art intrudes itself, not as a disturber but as an agency for the enrichment and refinement of the home as an essential factor in the world of contentment.

The second group or classing of courses may be described as elective. They are open to all students. This group is concerned with an appeal to the creative instincts. It attacks the imagination from various angles. Beneath the exterior of all forms of ordinary expression there is something that possesses interest. The problem becomes a problem of guided inquiry. It is the business of art to find this quality and give it proper setting in the individuality of the student. A knowledge of certain principles or laws becomes necessary. There arises subsequently a course in freehand drawing.

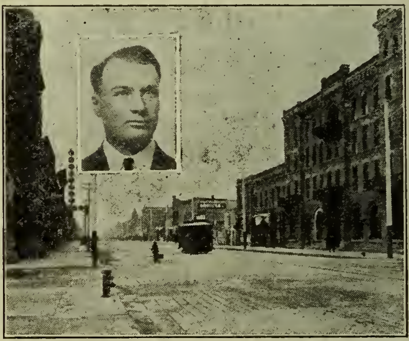
This course may be elected by those students who have but scant acquaintance with the principles of drawing. Instruction in technique is the proper beginning for this class of unskilled aspirants. Stress is placed upon the bare rudiments. When the rudimentary stage has been passed the student is ready to advance to the more complicated problems of construction. This advancement is marked by his admission to the advanced course where the nature of the work is largely individual progress under the personal guidance of the director. All in all the aim here is to acquire technical skill in grace of line and symmetry of form.

The strict practical nature of the work required is again revealed in the course in metal and jewelry design. Since the days of Benvenuto Cellini this type of art production has been a matter of interest for all art lovers, and little need be said about its relative value to a college of the land grant type. Revival of handicraft is always a source of gratification and a praiseworthy enterprise when it is considered in contrast with the marked phenomenal development of the machine type.

The course for students in architecture attempts to point out some of the importance that the problem of proper setting has in the process of house designing. Emphasis is placed on the selection of detail as a means of personal expression and illustrations are gathered from the buildings about the campus. Some attention is paid to a study of types with the object of calling attention to the value of proportion and its meaning in organic unity. Work in charcoal is offered as an added help in the acquiring of standards and of a sense of value. The aim in principle is to assist the student in formulating elements of good sense and of good taste in the art of house planning.

The department has a helper in the dissemination of art appreciation in the Art Club. It holds meetings once every two weeks. Its membership is not limited to students and anyone who has had an introductory course in art may be eligible to join. Its object, in the words of one of its members is "to train our native susceptibilities and to cultivate our acquired tastes in the appreciation of what is worth while in what might appear to be the dreary commonplaces in our every day living."

Even though practical intelligence may be the dominant force that sways men there is room for other forces of similar value. Art should be inseparable from utility and communal activities. It should produce a modifying or strengthening effect upon the common life in all large agricultural states. Its burden possesses an importance much smaller in a quantitative way, but of equal value in the qualitative sense when it is balanced with the practical purposes that shape and determine life. No practical purpose is ever quite satisfactory or successful; there is always some part of the plan left unfinished. If permanent and complete work would be produced, then art must make its contribution.



Fred Birch, '06, and a view of his first construction job—a paving contract at Bozeman, Montana.

Fred Birch, is secretary-treasurer of the S. Birch and Sons Construction company Salt Lake City, Utah, and Fargo, N. D., municipal contractors. In a recent letter to Dean E. S. Keene, he gives expression to a few reminiscences of former days at A. C.

"Your introductory remarks and cut in a recent number of College and State, bring vividly to my mind incidents of twenty years ago. At one time you were toastmaster, presiding in a happy manner at the annual football banquet over in old Francis Hall and in introducing some speaker you told a joke that sticks vividly in my mind. It's a far call to connect

Alumni Hold Uncorking Program

By L. R. Waldron, '99.

Uncorked is right! As from a bottle of choice and ancient vintage, the long-gathered cobwebs were carefully brushed away, the cork was pulled steadily and with gladness by that prince of joy cork pullers, Bill Williams and the "flow" was on. The feast was a minor matter, but the flow of long pent up alumni spirit and feeling was good to look upon, good to sip and sample, indeed it was even good to bathe in.

It was a happy thought to have gathered together at Ceres Hall, December 9 the various alumni members of the institution attached to its staff to compare notes, to pledge a new loyalty to their alma mater and to show that with only a reasonable amount of time and attention student attendance at the A. C. could be materially increased.

After a round of "Hail, Hail, The Gang's All Here," and a series of ten-second autobiographies, where Sid Hooper, '17, easily carried off the honors, President Coulter in a short, inspiriting talk, bubbling with optimism, encouraged each to "carry on" in his particular line according to the best of his ability. Then Director Randlett who, by the way, is an old A. C. graduate of '08, told his county agent men what a remarkable opportunity they had to sell the institution to the young men and women of the state. Mr. Williams then called on a few of the county agents for remarks along this line. The responses were certainly encouraging.

Carl Aamodt, F. H. of '16, spoke of the importance of interesting the young men of a community showing promise in athletics. Such fellows, he had noticed, were the natural leaders among their companions and the choice of an institution by such leaders had a marked influence upon their associates. The young men of athletic tendencies acted somewhat upon the order of a bell-weather.

Roy Dynes, '14, of Richland county spoke of his experiences as an agent in Cavalier county. From geographical position and from long habit, very few students from that county had entered the A. C. He was delightedly surprised, therefore, to find three students at the A. C. from Pembina county associated with him at the boys' encampment in that county. Such a start, from that county, would bear further fruit he was certain, especially if a "follow-up" campaign was carried on.

E. G. Schollander, '06, said that until this year, in Williams county, Russian thistles had been perhaps the most abundant crop but scattered among the thistles were a good many young men and women who, he was sure, could be induced to attend the A. C. in spite of the long distance. Especially would this be true if the efforts exerted by him in the county were backed up by a strong home campaign.

Mr. Williams announced that plans were under way for a closer union between the city of Fargo, represented by various organizations, and the A. C. Several of the men paid their alumni dues to Ted Stoa, '15, alumni secretary. (Item. All others invited to do likewise.) A motion was carried that a committee be appointed to act as a central clearing house agency and campaign headquarters to cooperate with alumni county agents, and others, to work toward recruiting the ranks of the A. C. students from the young men and women of North Dakota. Geo. Mayoue, '18, was appointed chairman. After one verse of the "Yellow and the Green" the company dispersed with joy and optimism in their hearts.

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your little article in the September issue of College and State with that story 20 years ago, but it's a fact.

"I have frequently wondered whether the domestic science girl of these years can 'bootleg' to the ardent young swains the goodies and the delicacies we used to get by waiting out in the hall, or by going in and helping ourselves while the girls finished their kitchen work, after we got better acquainted. We had a cinch and we didn't appreciate it at all."

(*Continued from page 4*)

letic teams. The same characteristic is responsible for the large business which he has built up at Page, N. Dak. "Polly" is a member of the executive committee of the State Pharmaceutical Association.

Henry Reddy, '11, is paint and varnish chemist with the E. I. du Pont de Nemours and Co., Philadelphia.

Seward C. Hoel, '12, owns a drug store business at Milnor, this state.

A. M. Hammes and Clarence Hay, '13, are connected with the Bentson Drug Stores. The former is manager of the Valley City store and the latter of the Dacotah Drug in Fargo.

Mathys Jongeward, '14, was connected until recently with the Cudahy Co., Omaha, Neb., as assistant research chemist.

Lincoln Hanson, '14, is managing the Miller Pharmacy at Wahpeton, and Eddie Zimmerman of the same class has accepted a partnership in the Taubert Pharmacy at Casselton.

Peter de Boer and George Shunk, '15, are proprietors of drug stores located respectively at Linton and Lakota. Both men were married during the past year, George's bride being Rose Nittag, pharmacy graduate of 1920.

The dispensaries of both the Fargo clinic and St. John Hospital, Fargo, are directed by graduates of this school. Albina Foster, '15, manages the Fargo Clinic dispensary, and Keziah Evinason, '20, that of St. John's hospital.

Five years ago or so this institution had a "crack squad", which was second to none. The old timers will recollect that T. Q. Benson and Cyril Mergens were active members of this famous organization. Both men graduated in 1916, and at the present time "T. Q." is associated with his brothers in a drug business at Michigan, N. Dak., while "Cy" is connected with the N. D. State Food and Drug Commissioner's office as drug chemist and inspector.

Fred Maser, Jr., and I. O. Haroldson, '16, are owners of stores located respectively at Glen Ullin and Rolette. Both are making good.

Labon Cochrane, '17, is in charge of the dispensing room at the Fargo Drug.

Pat Costello and Selmer Haakenson, '17, are both active in the drug business. The former is proprietor of the Cooperstown Drug and the latter of the Nyhus Pharmacy at Hatton.

Elder G. Ottis, '17, known as "Crum" Ottis, and one of the best pitchers A. C. ever had, is now married and is the owner of the drug store at Abercrombie.

The preceding list includes only a small number of the former students of the School of Pharmacy. Further data regarding the activities of our old graduates and former students will be published later.

Former students of the School of Pharmacy will be interested in the new course called the pharmaceutical seminar which meets one hour a week throughout the entire year, at which all students registered in pharmacy are assembled in one class. Each senior student is allotted a subject pretaining to the professional or commercial side of pharmacy and is required to prepare and present before the class a suitable paper.

Faculty members and speakers not connected with the institution, address the class at frequent intervals. On December 15th, Dr. Ehlert of Parke, Davis & Co., Minneapolis, Minn., gave an illustrated lecture on "Anti-Serum Production."

The North Dakota Pharmacy club held its annual initiation on the evening of quite an interesting time impressing December 8th. The upper classmen had thoroughly upon the freshmen their proper place in life. It is reported that success was attained in every instance.

The N. D. P. C. has more than forty members and everyone is determined that the reputation, which the club has earned in the past, will be maintained in the future.

Marriages Reported By The Pharmacy Scribes.

Frederich William Koester, '20, and Miss Josephine Karoline Olson announced their marriage, which was celebrated on September 25. Miss Olson is a registered nurse by profession. We always had an inkling that "Bill" was a most practical and long-headed man and now we know it.

Andrew Moore, '21, known to his intimates as "Andy" was married on August 17, to Miss Elvina Westergaard of Buffalo, N. Dak. "Andy" at present is part proprietor of a pharmacy at Hope, N. Dak., and he "hopes" soon to be the sole proprietor. And he will, too, if the name of the town is any indication. Here's hoping that Andy's hopes at Hope will materialize.

November 24 was a great day in the young life of Thomas Hoffland Peterson, '21, erstwhile known as "Pete". It wasn't on account of the fact that Pete's salary was raised a few simoleums a month or that Pete's boss complimented him on his rosy complexion. We want you to know that Pete was married on that day to Miss Anna M. Dickerson. If you don't believe that Pete is a happily married man, just drop into the Dacotah Drug in Fargo. Pete wears the smile that won't come off.

Broad A. C. Athletic Policy Planned

By Prof. I. W. Smith,

Member, Athletic Board, N. D. A. C.

Most significant among plans which are being developed by the athletic department at the Agricultural College are those related to athletics outside of varsity teams, and the representation of the alumni body on the athletic board.

Good teams to represent the college are an important aim of the athletic department and of the athletic board. Attention to inter-mural sports and mass athletics whereby a large number of students may engage in sports is also important and is being emphasized more ach year. Before the Christmas holidays several teams representing college classes competed in basket ball, and the winning team—the Juniors in this instance—are to be awarded class numerals in recognition of their work. Considerable interest has been aroused in these inter-class competitions and they have been valuable preliminaries to the regular training season.

Keen interest is also being manifested in athletics and physical education for women. For the first time in years, a women's basket ball team represented the College last year and a college team is being chosen again this winter. Inter-class basketball games also have been held among the women. Physical education is required during the first two years of college work. A teachers training course for women is also being offered for those desiring to teach.

Special attention is being given to ice sports and such activities will be a distinctive feature of winter athletics. For the present, a skating rink has been constructed and provisions for a curling rink and ski-slide are future possibilities.

To aid in further expanding the activities of the athletic board, action has recently been taken to include a representative of the alumni body on that body. Such action should lead to closer cooperation between the forces within and without the college for a larger and more aggressive athletic program.

A. C. Basketball Schedule, 1922.

Jan. 7—Fargo K. of C..........A. C.
Jan. 11—Fargo K. of C.....K. C. Hall
Jan. 14—Moorhead Normal.......A. C.
Jan. 17—Concordia College.......A. C.
Jan. 19—Dakota Wesleyan.......A. C.
Jan. 21—Fargo Y. M. C. A........A. C.
Jan. 24—Moorhead Normal..Moorhead
Jan. 27—Jamestown College.....A. C.
Feb. 1—Jamestown Col.....Jamestown
Feb. 4—St. Olaf's College.......A. C.
Feb. 8—Fargo Y. M. C. A...Y. M. C. A.
Feb. 11—Fargo College..Fargo College
Feb. 14—Concordia College..Moorhead
Feb. 17—S. Dakota State.........A. C.
Feb. 20—Ellendale Normal.......A. C.
Feb. 24—U. of N. D..............A. C.
Feb. 25—U. of N. D..............A. C.
March 3—U. of N. D.....Grand Forks
March 4—U. of N. D.....Grand Forks
March 8—Fargo College.........A. C.
March 10—District Tournament..A. C.
March 11—District Tournament
and Macalester College......A. C.
March 24—State Tournament....A. C.
March 25—State Tournament....A. C.

Duerner Elected Football Captain.

Louis Duerner, star half-back and quarter on A. C. football teams of 1919 and 1920 was elected captain of next year's squad at the annual football banquet last month. Due to a serious opreation Duerner was unable to play last fall.

A. C. Supplies Increased Demand for Graduate Veterinarians

Once upon a time the average veterinarian was not necessarily a veterinarian, and North Dakota did not even need many "horse doctors", but with the advent of more livestock in the state and with greatly increased professional standards, veterinary medicine enters upon a new period in North Dakota as well as in other states.

Better types of men are now in the field and better men are entering the veterinary courses which now require four full years of study, say leaders in the profession. The old type is gone, and the new well-educated, graduate veterinarians are going into locations where they are needed to serve their communities, and to make the best of the undeveloped resources in veterinary medicine. But let Dr. A. F. Schalk, in charge of the department of veterinary science at A. C. suggest a few local developments in the profession.

"North Dakota is just beginning to appreciate the importance of livestock," says Dr. Schalk, "and examples are constantly of the state. Along with this development pointing to its importance in the future is the increased need of good qualified veterinarians."

Besides providing two years of study in its school of veterinary science, A. C.'s department continues to be of service in other ways. Graduates of her veterinary course are doing particularly well in graduate schools because the school conducts its classes with small groups, students receive individual attention, and a large equipment is available for the work.

Conspicuous among the research and experimental projects that have been in progress in the "vet" department is the work with hog cholera, swamp fever in horses, and the observations of the functioning of the stomach—gastric motility if you please—which is creating interest in other states. Various tuberculins are prepared and distributed by the department, among which is the tuberculin used in detecting avian tuberculosis by a test worked out by the Agricultural College staff a few years ago. Various vaccines and bacterins are prepared as occasions call for them, and the laboratories are also engaged in doing the bacteriological and pathological work required by the North Dakota Live Stock Sanitary board. Last summer 115 veterinarians of the state attended a short course in animal tuberculosis held at the Agricultural College for their benefit.

Definite locations of 41 of some 50 men who have attended the school of veterinary medicine are included in the following list, together with the class and institution in which their training was completed.

John T. E. Dinwoodie, University of Pennsylvania, '14, live stock specialist and veterinarian, Dakota Farmer, Aberdeen, S. D.

C. N. Hofstrand, University of Pennsylvania, '14, practice, livestock, Brinsmade, N. Dak., assistant state veterinarian.

T. O. Brandenberg, Cornell University, '14, practice, Lakota, N. Dak., assistant state veterinarian.

L. R. Montgomery, Ohio State University, '15, practice, Casselton, N. Dak.

R. S. Amadon, Ohio State University, '16, teaching, veterinary department N. D. A. C.

W. F. Joseph, Ohio State University, '16, practice, Iroquois, S. Dak.

A. B. Haskins, Iowa State College, '16, practice, Davenport, Iowa.

A. J. Matter, Ohio State University, '16, practice, Crystal, N. Dak.

B. K. Bjornson, Ohio State University, '17, special assistant, state veterinarian, Mandan, N. Dak.

V. Mikkelson, Ohio State University, '17, practice, Starkweather, N. Dak.

F. Low, Ohio State University, '17, practice, Oakes, N. Dak., assistant state veterinarian.

O. V. Gunning, Ohio State University, '17.

L. Ewen, University of Pennsylvania, '17, lieutenant, cavalry, U. S. A., Camp Ethen Allen, Burlington, Vt.

H. Stafreth, Michigan Agricultural College, '17, teaching, veterinary department, Michigan Agricultural College.

C. G. Coleman, Ohio State University, '21, practice, Valley City, N. Dak.

R. E. Lubbehusen, Ohio State University, '18, assistant veterinarian, experimental station, N. D. A. C.

O. I. Catlin, Ohio State University, '18, practice, Moorhead, Minn.

H. Roberts, Ohio State University, '18, practice, Edgeley, N. Dak.

H. Stoplestad, Ohio State University, '18, practice, Fosston, Minn.

North Dakota Extension Workers Attend Annual Conference

Extension workers attending the conference and subject matter school at the school at the Agricultural College, December 5 to 16, are included in this picture. N. D. Gorman, assistant county agent leader, and Max Morgan, dairy extension specialist, are not shown in the group. Eighteen of the 80 people shown in the picture are alumni of A. C. Their classes are indicated in the following list:

First row, left to right—T. X. Calnan, '13, county agent Barnes county; George Isle, county agent, Morton county; R. L. Newcomer, county agent, Grant county; Wallace Moulton, mimeograph clerk; E. A. Greenwood, county agent Sargent county; A. C. Peterson, county agent, Eddy county; A. E. Adams, county agent Dickey county; A. L. Norling, county agent, McLean county; A. A. Penn, club leader, Dickey county; Irving Courtice, club leader, Sargent county; A. J. Bredvold, county agent, Mountrail county; E. G. Schollander, '06, county agent, Williams county; Milton Jensen, county agent, Renville county; Clara L. Larson, club leader, Barnes county.

Second row—O. A. Barton, poultry specialist; Lillian Flatt, stenographer; J. Clayton Russell, '11, county agent, Golden Valley county; Mrs. Myrtle G. Cole, State Home Demonstration leader; Miss Grace DeLong, district home demonstration agent; Miss Hazel Spencer, nutrition specialist; Miss Eulalia Church, clothing specialist; Miss Irene Dunne, assistant state club leader; Mrs. A. H. London, district home demonstration agent; Miss Agnes Boeing, assistant home demonstration leader; Miss Charlotte Biester, county club leader, Hettinger county; Mrs. Ralph Andrews, mailing clerk; A. H. Neuman, county agent, Towner county.

Third row—Margaret Timlin, stenographer; H. S. Bacheller, county agent, Hettinger county; John Huseby, county agent, Ward county; Karl Swansen, county agent, Burke county; R. E. Arnold, county agent, Kidder county; G. C. Poe, '16, county agent, Mercer county; Charles Eastgate, county agent, Slope county; E. C. Hathaway, county agent, Walsh county; M. B. Johnson, 09' county agent, McKenzie county; H. R. Danielson, county agent, Pierce county; R. C. Dynes, '14, county agent, Richland county; William Guy, '16, county agent, Cass county; Eva Cronk, club leader, Grand Forks county.

Fourth row—T. S. Thorfinson, '21, management specialist; Hutzel M. Metzger, '20, farm management specialist; A. M. Challey, '17, county agent, Ramsey county; Luella Barrett, stenographer; Agnes Polotiski, stenographer; Emma Skeem, stenographer; C. Ruth Hammerlik, stenographer; E. A. Willson, county agent; T. L. Bayard, assistant editor; Th. T. Kristiansen, '05, county agent, Nelson county; E. G. Parizek, county agent, Pembina county; Basil Bennett, county agent, Divide county; Edgar I. Olson, '13, agronomy specialist; R. S. Goodhue, county agent, Stutsman county.

Fifth row—Dr. John Lee Coulter, president; W. P. Mortenson, '21, Cass County Boys' and Girls' club leader; Merle Thomas, '16, county agent, McHenry county; Rex E. Willard, '08, farm management specialist; Ernest Martinson, farm management office; H. O. Sauer, county agent, Emmons county; E. W. Vancura, county agent, Wells county; Geo. J. Baker, livestock specialist; Gordon W. Randlett, 08, director of extension; Geo. P. Wolf, assistant state leader; Dr. Don McMahan, extension veterinarian; Harry E. Riling, state club leader; John W. Haw, state county agent leader; Morse Lewis, home demonstration agent, Williams county.

Sixth row—Miss Jean Edwards, clerk; Miss Karen Lee, stenographer; Ralph Andrews, secretary; W. L. Johns, county agent, Cavalier county; D. B. Morris, county agent, Grand Forks county; C. B. Aamodt, '16, county agent, Bottineau county; Charles L. Lake, county agent, Foster county: Sidney Hooper, '17, assistant editor; A. P. Hollis, visual instructor specialist; Miss Sarah Hansen, clerk; Minda Lien, clerk; Alice Murphy, clerk.

H. Rae, Ohio State University, '19, practice, Minnewaukan, N. Dak.

C. Dale, Ohio State University, '19, practice, Rugby, N. Dak.

J. McEune, Ohio State University, '19, practice, Sisseton, S. Dak.

Arthur Ellertson, Ohio State University, '19, practice, Madison, Ohio.

J. Thompson, Ohio State University, '19, practice, city milk inspector, Ely, Minn.

O. Kinneberg, Ohio State University, '19, practice, St. Paul, Minn.

S. Erickson, Kansas Agricultural College, '19, investigational work, University of Illinois.

J. Lang, Ohio State University, '20, practice, Mechanicsberg, Ohio.

N. Hauson, Ohio State University, '20, livestock sanitary board, St. Paul, Minn.

H. Osborne, Ohio State University, '21, practice, Dazey, N. Dak.

M. Thoreson, Ohio State University, '21, practice, Mayville, N. Dak.

E. Nichols, Ohio State University, '21, practice, Stephen, Minn.

P. McKenzie, practice, Kempton, N. D.

Eleven others are enrolled in graduate schools at present.

Among Our A. C. Folks

Thomas D. Jensen, former A. C. student, who spent 21 years in Alaska, is spending the winter at the home of his parents at 1106 College St., Fargo. He is engaged in hydraulic mining for gold at Nome, Alaska. Thrilling experiences, and first hand acquaintance with life within the Arctic Circle and among the eskimos has left Jensen equipped with a stock of Alaskan stories relative to the picturesqueness and the tragedy in the lives of the people in that country. His sister, Katherine Jensen, '04, formerly head of the home economics department at A. C., is now in charge of a similar department at the University of Idaho.

Dean W. Mendenhall, '14, county agent, Dawson county, Montana, is having splendid success with educational motion pictures at his meetings. Community contributions provided funds for buying a projector, and power is obtained by hitching a generator to the shaft of a Ford.

George S. Hansen, '20, recently instructor in agriculture at the Maddock State Agricultural School, is now county agent of Potter county, South Dakota, with headquarters in Gettysburg. Hansen is a former A. C. football man.

Winney Crouch, '16, is biological assistant in the U. S. Department of Agriculture, and is located at Boise, Idaho. Winney is in charge of rodent control work in that state.

Robert Jacobson, '17, who is now city engineer of Fargo, is apparently holding down his job like a veteran. According to "Mac", "Jake" is still unmarried but is nibbling at the hook.

James McLauchlin, '21, sends in some brief notes regarding co-workers in the engineering profession.

Mae Dennis, '20, principal of the New Salem high school visited the college recently.

Ray Bolsinger, '16, former star athlete at A. C., was recently appointed coach at Fargo College, and is busy training the college's basketball team. Sincere hope is expressed that "Bolly's" team trims everything in the field—excepting A. C.

Louis Jorgenson, '19, stopped off at Fargo on his way to the International Live Stock Exposition at Chicago. He states that Ole Olson is still running the hotel in that village.

Martin Hagen, '17, John de Jong, '18, and William Bina, '20, are employed in the State Insurance Division at Bismarck. Martin is manager of the State Hail Department.

O. A. Thompson, '01, superintendent of the Edgeley substation, spent a few days on the campus recently in conference with departmental heads regarding his work at Edgeley.

Percy Lowe, '21, and William McKinstry are farming this year. They are located at Frazee, Minnesota, and expect to develop a livestock business with their herd of Holstein cattle.

Harold Behlmer and Edwin Hooper, former students in the engineering department are also employed in the city engineer's office.

H. H. Zimmerman, '21, is with the American Education Association of Chicago.

Glen Livengood, '13, is in charge of schools at Bantry, N. Dak.

Ocena Sussana Wall, '21, condescended on September 6, to change her name to Lynch, for she was married on that date to Mr. Wallace M. V. Lynch, at Butte, Mont. Mr. and Mrs. Lynch are living at Walkerville, Mont.

Campus News

Five A. C. graduates who are now doing graduate work in the department of agricultural economics and marketing at the college are: Hutzel Metzger, '20, Theodore Thorfinnson, '20, E. X. Viking, William Mortenson, '20 and Marvin Kirk, '16. Kirk is farming with his father and brother near Devils Lake and is basing his thesis on an interpretation of the farm operations. He expects to finish his work with a term at the college later. Albert Severson, '18, animal husbandry department, A. C., and George C. Mayoue, '18, assisatant pathologist, U. S. Department of Agriculture, at A. C., are other graduates who are enrolled in graduate studies in the department.

O. A. Stevens, botanist, A. C., has an article in the last quarterly issue of the American Midland Naturalist, Notre Dame University, entitled "Plants of Fargo, N. D., With Dates of Flowering," which lists about 550 plants, and includes notes on distribution and abundance of the flowering plants based on personal observation. The articles has been reprinted in bulletin of 56 pages, which contains an index to the common names and a seasonal list of the plants.

North Dakota leads in the grade of gasoline it uses, states W. C. Palmer, chief oil inspector, and oil companies are cooperating splendidly with the state's inspection service.

Mexico wants to follow North Dakota's lead in using movies as an educational force. Such is the indication contained in a letter recently received by A. P. Hollis, in charge of visual instruction at the Agricultural College, from E. Martinez de Alva, of Mexico's Department of Agriculture.

The livestock world's honors were conferred on J. H. Sheppard, head of the animal husbandry department, Agricultural College, at a banquet, November 27, in the rooms of the Saddler and Sirloin Club, Chicago. Livestock men at the International Live Stock Exposition gathered to honor Professor Sheppard for his contribution to the livestock industry. His portrait will be hung in the club rooms, an honor which only 10 men who have been connected with college of agriculture in the United States and Canada have ever received.

More progress in farm accounting and cost of production studies have been made during the past few years in North Dakota than in any other aspect of farm management, according to Rex E. Willard, farm economist, Agricultural College, in charge of these studies, who has just published a book on farm accounting.

Fifteen secondary schools in North Dakota are now offering vocational training in agriculture and industrial arts in accordance with the provisions of the federal Smith-Hughes law, according to E. H. Jones, Agricultural College, in charge of teacher training courses in the state for vocational education.

North Dakota canning club members won six of ten prizes, including first and third, offered by a large eastern glass company for the best individual jars of canned fruit, vegetables or meat. Nine other central states competed with North Dakota club members for this district's honors. This victory is the third interstate contest won by North Dakota club members during the past six months. A state team won first place in the demonstratic contest at the Interstate Fair at Sioux City, Iowa, and the state dairy judging team won first honors in the competition at the National Dairy Show, St. Paul.

The Annual Tri-State Grain Growers Convention, Fargo, January 17 to 20 has developed a program which will stress the general subjects of economic production, marketing, and financing.

One Hundred North Dakota boys and girls, project winners in their local clubs, attended the Junior Achievement Institute, held at the Agricultural College, December 20 to 23, in session held under their leadership. Members of the faculty held demonstrations and informative discussions for the boys and girls. Officers of the organization which the young people have formed are: John Cronin, president, Grand Forks county; Lee Marshall, vice-president, Dickey county; Selma Lehlum, secretary, Barnes county; and Christ Larson, treasurer, Towner county.

Former student notes and activities will be featured in the 1923 Agassiz, A. C. student annual, according to Philip Balsley, editor, and Earl J. Heising, business manager of this year's yearbook. Additional staff members have already been selected and good progress has already been made towards publishing an outstanding A. C. annual. Mathew Tindall, last year's editor, is editor of the Spectrum, student weekly, this year, and is developing a creditable publication.

T. H. Hopper, agricultural chemist, was married on December 7 at Des Moines, Iowa, to Miss Clayton Smith of Higbee, Missouri. Both were students at the University of Missouri.

Requests for 3,663 farm demonstrations for next year were revealed at the conference of extension workers December 14, when far-reaching plans were formulated for the Extension Division's program for 1922. Plans which call for work with and aid in cooperative marketing projects, farmers clubs, cowtesting associations, growers organizations, boys and girls clubs, farm tours, and other projects are the result of projects formulated in 335 communities of 36 counties during the past few months.

North Dakota's educational exhibit shown at the International Live Stock Exposition at Chicago, November 26 to December 3, prepared by the State Experiment Station, gave results of the six-year pasture experiments at the Northern Great Plains Field Station, Mandan, N. Dak. Spectators showed keen interest in the demonstration of livestock possibilities in North Dakota.

Milton Jensen, of Two Harbors, Minnesota, has succeeded E. D. Williamson as county agent of Renville county, N. Dak. He is a graduate of the Minnesota College of Agriculture, and has been farming and teaching agriculture since graduation.

State club corn yield records were broken this year when Herbert Warner, of Milnor, Sargent county, secured an average yield of 126.6 bushels an acre of Rustlers white dent.

Poultry culling demonstrations held in 16 counties of the state during the past few months by O. A. Barton, poultry specialist at the college, have aroused keen interest in distinctions between laying and "boarder" hens. Several local poultry associations are now in prospect.

Dr. Earl D. Ross, chairman of the history department at A. C., was recently appointed to serve on a special advisory committee of the research bureau of the Roosevelt Memorial Association, as North Dakota's representative.

Five new bulletins and circulars have been published by the college during the past four months. They are:

Wrong Side Up, J. H. Shepperd, circular 45, which relates the story of the New Salem dairy circuit.

Slides and Films for Extension Workers, A. P. Hollis, a revision and reprint of circular 33.

Some Physical and Chemical Studies of Certain Clones and Sibs of Brome Grass, L. R. Waldron, Research bulletin 1, bulletin 152.

Physical characters and Their Correlation in Bromus Inermis, by L. R. Waldron, research bulletin 2, bulletin 153.

The Trial of the Short Gross Steer, J. H. Shepperd, bulletin 154.

Members of the faculty who attended national educational meetings during the holidays include: Prof. Cape E. Miller, chairman, department of agricultural economics and marketing, who spent Dec. 27 to Jan. 1, at the sessions of the American Farm Economics Association; at Pittsburg, Penn., Prof. C. I. Nelson, in charge division of bacteriology, attended the meeting of the Americal Association of Bacteriologist at Philadelphia, Penn., December 27 to 29; and Professor I. W. Smith, was present at sessions of the Americal Mathematical Society and the Mathematical Association of America at Toronto, Canada, December 28 to 30.

Increased demands on departments at the Agricultural College here, resulted last month in additions to the staffs of the Extension Division and to the School of Engineering. A. A. Melender, architect of Minneapolis and Duluth, Minnesota, and a graduate of the University of Minnesota, has been added to the department of Architecture, and George J. Baker, well-known livestock man and farmer leader of Farmington, Minnesota, graduate of the University of Minnesota. formerly instructor in animal husbandry at the University, and later in charge of demonstration farms in Minnesota has been appointed livestock extension specialist. Mr. Baker will cooperate with farmers, county agents, and others in projects and meetings aimed at disseminating more information regarding livestock management and in aiding the progress of livestock interests of the state.

Deaths

Alvin Colton of Burlington, N. D., student at the Agricultural College in 1915, was killed in a seaplane accident at Pensacola, Fla., last month. Colton was serving as machinist's mate. The plane in which he was riding went into a tail spin when at an altitude of more than 1,000 feet and crached on the beach.

Alvin Colton was born in Ward county, N. Dak., and was 25 years of age. He entered the service at the opening of the war, and reenlisted later.

Marriages

Miss Olive Brownlee, Mapleton, D. Dak., to Sidney W. Hooper, '17, assistant editor at the Agricultural College, December 3, 1921.

Miss Maizie Gilmore, '18, of Billings, Montana, formerly of Fargo, to Peter Millitar of Brinsmade, N. D.

Ocena S. Wall, '21, to Wallace Lynch at Butte, Montana. Mr. and Mrs. Lynch are living at Walkerville, Mont.

Irene Haugeberg, '19, to Hans Nelson of Washburn, N. Dak.

Wide Range of Courses Offered by School of Science and Literature.

Only during the past few years has the School of Science and Literature been a distinct unit, in charge of Professor A. E. Minard. The school includes the Department of Biology, H. L. Bolley, dean, which is divided into the division of botany and plant pathology, Professor E. S. Reynolds, and Assistant Professors O. A. Stevens and Mayme Dworak; the division of zoology and physiology, Professor R. T. Hance, Associate Professor G. E. Miller; and the division of bacteriology, Professor C. I. Nelson, and Assistant Professor Dworak.

There is also the Department of English and Philosophy, Professor Minard. Associate Professor Abbie L. Simmons, Assistant Professor Alice P. Dinan, Kenneth Kuhn, Ivan V. Johnson, and W. E. Boots. The Department of History is in charge of Professor Earl D. Ross. In the Department of Mathematics are Professor I. W. Smith, Associate Professor Householder, Miss Olive Atwood, Walter A. McKim, and John E. Dynes. Professor A. G. Arvold, heads the Department of Public Discussion and Social Service, and is assisted by Miss Marjorie Lieberg. Associate Professor A. F. Hunsaker, is in charge of the Department of Social and Economic Science which is being re-organized together with the Department of Farm Management as a part of the new Department of Agricultural Economics and Marketing. Foreign languages are under the direction of the Department of Modern Languages, of which Professor Leon Metzinger is chairman. Florence Schwarz and Marjorie Lieberg are instructors in the department. The Department of Geology and Mineralogy is also a part of the School of Science and Literature.

Albert Birch, a brother and a former student at A. C., is also a member of the construction company with headquarters at Fargo.

Letters from a Freshman—3

Dear Slim:

Christmas vacation has come and gone without a hitch. All I had to do was to sit around home and vegetate and to do most of the chores around the place and when you have been pushed to the extreme, like I have at the college, you are glad to imitate a house plant for a while. ,Here I am studying poetry and pickled frogs again. I have just been studying an ode for English class, and I believe that a light is dawning in my cerebellum, scientifically speaking, and that I have found a key to what the poet was driving at. Odes may be a thing of joy in the young lives of some guys but when the only one you ever write is one of these "Owed to the Landlady" propositions, the fun is represented by the saying about it being harder to give than to receive. This is especially true when you have to pay the gasoline to run your friends bus when you haven't got one of your own, like I have to with Perky's rattler.

We talked in Economics class about railroad transportation and we waxed oratorious about the government subsidizing the railroads which brings to my mind an idea that this movement should be pushed until it covers the case of the starving motorist who it seems to me would be greatly benefited by federal help also. I run along in my friends bus as if I was afraid the gas was giving out all the time and I guess the only way I could be arrested would be for speeding on the sidewalk. Ha. Ha.

Cheer Up Slim there are only three or four months of winter yet and by that time we can get up after the street lights are out. This getting up under cover of darkness reminds me of the old two on and four off only the process involved was simpler in the extreme.

Well I've got to get busy or flunk in the attempt.

So Long,

Red.

DO YOU KNOW—

That there are 78 percent more dairy cattle in North Dakota now than there were in 1910?

That there are four cow testing associations, and more in prospect?

That all classes of cattle have more than doubled in number in the past ten years?

That poultry has increased in number by 1,340,000 during the same time?

That the land area in farms in North Dakota has increased 17 percent in ten years?

That the receipts from the sale of dairy products in the state has increased 385 percent since 1910?

Flickertail farmers are coming to believe that more diversified farming means more prosperous farms. Upon the latter rests the future prosperity of the state.

BLOWS AND EXCHANGES

"Dah", said Sam as he surveyed the fragments of the broken bottle and its oozy contents on the sidewalk, "Christmas and New Yeah's has done come an' gone."

***

Bright sayings of profs—"I began life as a school teacher," says one, which goes to show that some become bright while others are born that way.

***

"What do I want to go to school for when I can't read nor write?" said a prospect in a nearby city recently.

***

An amateur, states the New York Tribune, is any one who can get away with it.

***

"Yes, your new dress is bee-autiful dear, I had one just like it last year."

***

"Have you ever read L'Allegro?" "No, but I've smoked it."

***

Absent-mindedness, Johnny, is a state of being illustrated by the wretch who inadvertently used his wife's new evening dress for a pen wiper.

***

Slipping one over on the profs, said some one lately, is an error analogous to the mistake the hod-carrier made who carried the same hodful up and down all day in order to make the boss believe that he was working.

Go to College!

By Dean Arland D. Weeks

Go to college? Certainly.

There are too many who do not consult the dictionary when in reasonable doubt.

There is still too much reliance on the patent medicine bottle.
The gold brick market is still too brisk and the sucker list too long.
Too many think **data** takes a singular verb.
Too many people are inclined to say "Huh?" at the mention of the names of H. G. Wells and Thomas Hardy.

Why go to college?

To remove the fear which marks caste.

To meet specialists. In college you find men who, barring prejudices and stoppages, are singularly well informed and contemplative; they can tell you more in an hour by way of interpretations and summings up than you can get for yourself thru a long period of unaided effort.

Go to college for professional training. No one today can be adequate in a profession unless he is well educated—and all employments tend to become professional.

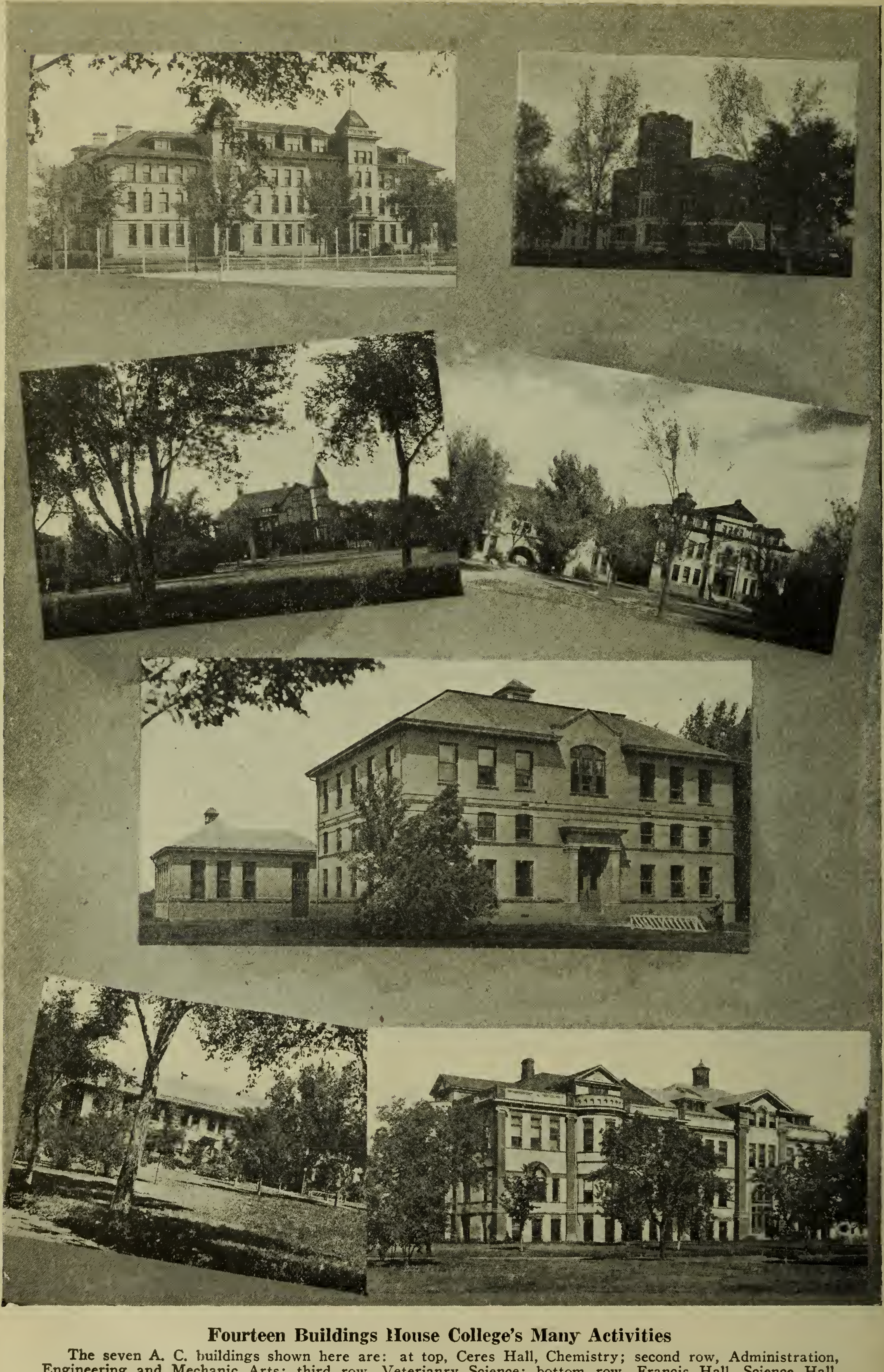
What will the next fifty years bring forth? Co-operation, international law and administration, social engineering, expert production, the intellectualizing of society after a struggle with the powers of darkness, renascent democracy, more general adoption of scientific viewpoint safeguarded by humanitarianism.

As society grows more complex the need of education increases. It was ever so. First no schools, then elementary schools, today the universal high school, tomorrow universal college education—more or less.

Go to college?

Yes—everybody.

Go for a while anyhow, to broaden experience. It may not be feasible to stay four years and hunt down a degree. Would that degrees were not! But go to college by all means—four years, three years, two years, one year, a term—a week!



Fourteen Buildings House College's Many Activities

The seven A. C. buildings shown here are: at top, Ceres Hall, Chemistry; second row, Administration, Engineering and Mechanic Arts; third row, Veterianry Science; bottom row, Francis Hall, Science Hall.

COLLEGE STATE

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College is High School Student's Opportunity

BY DR. JOHN LEE COULTER

President, North Dakota Agricultural College

MARCH is here, and following March comes April and May, and then the summer vacation. Thousands of students leave the schools never to return. This is true not only of college students and of students in the country and graded schools, but it is also true of the high school students. During March, April and May thousands of high school seniors are discussing the question of going to college. They must soon make up their minds. If they are going to start work they must seek permanent employment. If they are going to college the summer is either a vacation, or three months in which to make a little money to help finance a college course. Seniors who graduate from the high schools in North Dakota, especially this year, are invited to consider, first—why they should continue their schooling and go to college, and second—why they should come to the Agricultural College.

"There never was a greater opportunity for high school graduates than that which lies today in going through college, both for the good of the student and for the good of the entire state and nation."—President Coulter.

Just before the war a number of investigations or studies were made with reference to the value of an education. The general conclusion reached by a number of different people was that taking the average for hundreds of thousands of men who had dropped out of school as boys when they were ten or twelve years old, these men on the average were making only about $300 per year. Of course there were a few men who had gotten very little schooling who have been great successes, but the great majority of men were hard at work as laboring men making only about $300 per year. It was also found among many thousands that those who had gone on thru the seventh and eighth grades or had completed the country school—in other words those who had gone to school until they were fifteen or sixteen—were, on the average, making about $600 per year. Here again we have a few outstanding exceptions, some who have succeeded in spite of a lack of education.

Information was gathered with reference to several thousands who had finished high schools; those who had gone to school until they were eighteen or twenty years of age; and it was found on the average, taking large numbers, that they were making $1200 or more. Then a study was made of a large number who had gone on to college—those who had taken a four year college course were considered and the average for all of those who responded to letters written was about $2400 per year. In other words, large numbers of college graduates when their salaries were averaged together were receiving just double the income secured by high school graduates. This is a matter which every high school senior should study.

If you are through with school and do not go to college you may of course make much more than $1200 a year. Let us say that you have forty active years before you. Forty years at $1000 a year, is $40,000, your life work. But if you should go to college and make a thorough success of your college training; if your success was equal to the average of hundreds canvassed, your return for forty years of active life would be over $90,000—in other words, it would be $50,000 more than the average for high school graduates. Where will you find a chance to make $50,000 better than four years in college? Have you figured out what a four year college course would cost you? In fact, it need not cost you anything except good, stiff work during the summer vacation and part-time work throughout your college course. The mere fact that as a high school graduate you have no money should not hinder you if you are determined to get a college education. There are ways to make money to do it. But if you should spend $500 a year for four years, a total of $2000, would not $50,000 be a magnificant economic return? All of this is assuming that you are an average student.

But going to college is not merely a money making matter. It is a matter for preparing yourself for service both for yourself, your family and your state and nation. There is great need, and every day we see the need more and more, for educated farmers to assist in community problems, educated engineers, educated business men and professional men. There never was a greater opportunity for high school graduates than that which lies today in going forward through college, both for their own good and for the good of the entire state and nation.

Those who decide to go to college must necessarily decide for themselves what their college course shall consist of. If it is law or medicine quite likely they would not come to the Agricultural College, although even then they might take the Freshman and Sophomore work and secure as good preparation as in any other institution in the country. Students, in consultation with their family, must decide more or less definitely what their field of study is to be. Then they should select an institution best qualified to give them the training they desire. On another page in this number of College and State there is an outline of the work offered at this institution which students everywhere are invited to examine. If they are interested they are invited to correspond with us and full details will be furnished on all points.

Glee Club Plans State Tour

The men's glee club of the college, numbering almost 40 men, is one of the active musical organizations directed by Dr. C. S. Putnam.

The First Generation at A. C.

By A. H. Parrott, Registrar

THIRTY-TWO YEARS have passed since the North Dakota Agricultural College was actually organized for work. This span, as human affairs are measured, marks off a generation and it seems fitting, therefore, to pause and for a few minutes consider the works that the fathers of this first generation have wrought.

In October, 1890, the work of the school was started and was then carried on in rented quarters, in part in the heart of the business section of Fargo and in part in the basement of Fargo College. The present site of the Agricultural College was then a slough usually accessible to pedestrians only after winter had covered it with ice. Not one of our splendid elms then stood in its place.

Because of its close association with the industrial, professional, and educational problems of the state, A. C. is closely associated with the hopes, struggles, and ideals of North Dakota. Its history is intimately linked with the lifetime and development of the state.

Today, the institution owns 960 acres of land, every foot capable of cultivation. One hundred of these acres have been transformed into the beautiful campus, and on them fourteen buildings—several of them fire-proof and modern—have been erected for instructional purposes. There are, in addition, the farm house, the seed house, the mill, and the barns for the purposes of the experiment station. This summer there is to be constructed, the first section of our new agricultural building. On the latest inventory the value of these present buildings and grounds is carried at $831,375 and the equipment of classrooms, shops, laboratories and farm at $372,659. Although not directly a part of the educational plant, there must be considered as a part of the achievement of the first generation the experiment substations at Dickinson, Edgeley, Hettinger, Langdon, and Williston, and the McLeod farm, on the same inventory given a combined valuation of $183,000. If to this we add the estimated value of our endowment—the federal landgrant—at $1,800,000, we have a capitalization somewhat in excess of $3,000,000.

The first catalog of the college shows a student enrollment of thirty—the vanguard of the more than seventeen thousand who have passed in and out of its doors. Incidentally, it may be of interest to note that among those thirty appears the name of Robert B. Reed of Amenia whose name also appears among the five who comprised the first graduating class, the class of '95. Mr. Reed has therefore the distinction of being considered the first graduate of the institution.

Including the classes of '21, thirteen master of science degrees, 459 bachelor of science degrees and 100 Ph. C. degrees have been granted and 294 have been graduated from the high school, 182 from the farm husbandry curriculum, 27 from the homemaker's curriculum and 45 from the power machinery curriculum.

The first catalog lists the following faculty: H. E. Stockbridge, president; E. F. Ladd, chemistry; T. D. Hinebauch, veterinary science; C. B. Waldron, horticulture, H. L. Bolley, botany and plant pathology, and H. W. McArdle, assistant in horticulture. In bold faced type, this faculty told the world: "The North Dakota Agricultural College shall be, so far as the power of direction lies within us, distinctly agricultural in character. But one course of instruction will be offered, and that will be positively agricultural and in the broadest conception which the word may apply."

The development from this interpretation of the Morrill Act, and of the state constitution to the college as it stands to-day, with its twenty-two differentiated curricula of collegiate grade, its four somewhat parallel subcollegiate curricula and its five high school curricula, is however the measure of the achievement attained by this first generation. This accomplishment is indissolubly associated with a name that does not appear on that first faculty list, that of John H. Worst, president of the college from July 1895 to March 1916. Acquiring after graduation from college, a rich experience as an educator, more especially among the rural schools, journalist, farmer and legislator and from all of this an educational ideal, Dr. Worst brought to the college a vision, a purpose and a leadership that have made the destiny of the institution secure. Allowing his co-workers the most liberal opportunities for self-development, he yet so instilled in them his own purposes and ideals that in the troublous years that have followed his separation from the institution, there have remained those strong enough to resist successfully all efforts toward the limitation of the institution's field of usefulness.

During Dr. Worst's administration the institution's four main activities—instruction, research, extension, and regulation—were recognized and organized; the curriculum was established in all essentials as it is today; the internal educational organization of today had been provided; the teaching faculty had been expanded to 63 and the student enrollment had reached its peak, 1215 in resident instruction.

While the last six years have been ones of trial during which the institution has apparently marked time, they have served to prove the innate strength and worthiness of the institution. Nothing has been lost that cannot easily be replaced and much has accumulated that is extremely worth while, for although the short courses have dwindled to an almost negligible quantity, the industrial and the high school curricula have held their own and the collegiate enrollment has increased at least 75 percent, being now yearly 500.

And now, what of the future? The craft has proved her worthiness; the crew is essentially intact and, by the exigencies of the storm, more closely knit; a new and experienced pilot has come aboard who, by his leadership, has already reassured the crew; the outlook reports the sun glowing amidst the vanishing clouds, the water deepening and the winds more favorable. She will shortly be out in the deep, free to pick up again the line set for her. It's going to be a "bon voyage" and she will make harbor.

Social Activities at the Agricultural College

By Prof. W. F. Sudro

At every educational institution certain social features are included as a part of student life. "All work and no play makes Jack a dull boy" is as true in its application to educational institutions as it is to any other phase or walk of life.

The social side of the student's life is a problem, which must be considered as a permanent one. Students, as well as all other young people, will attend dances and parties and it is proper and fitting they should have that privilege.

It is the aim of the Agricultural College to encourage the proper type of social entertainment for its students, in so far as such entertainments do not encroach upon the regular work of the students. All social entertainments given under the auspices of the institution or of any recognized organization connected with this institution are carefully supervised. The presence of at least two patrons and patronesses is required at every student social function, although on most occasions more than the required chaperons are in attendance. Those in authority at the Agricultural College are safeguarding the interests, as regards social activities, of the students and their parents as far as is humanly possible.

The Weekly Spectrum Mirrors Student Life

By MATTHEW E. TINDALL, '22,

Editor, The Weekly Spectrum

If it is true that an institution is judged by its graduates, it is equally true that her standing among the other colleges of the country and the various institutions that learn of her activities largely through the printed page, is based on the impression made by the student, alumni, and college publications. Until a year ago this phase of A. C.'s program had been somewhat neglected.

The first move in the right direction came when College and State was made into an alumni publication published bi-monthly in the interests of the college. The next step which is about to be achieved is the improvement of the student news organ, The Weekly Spectrum, published for and by the students of the college. Because most of the high schools of our state have no student paper or are just starting one, the conduct of the Spectrum has of necessity been in the hands of students who have had no previous journalistic training and who have received none while in college, other than the limited amount given in English classes. This condition has imposed a tremendous burden upon the students who have taken up the task of publishing the paper in past years. The choice of the editor and staff has been based largely upon the student's native ability. The result of this situation has been that the college student publication has been inferior to many of the student publications of other schools in this part of the country.

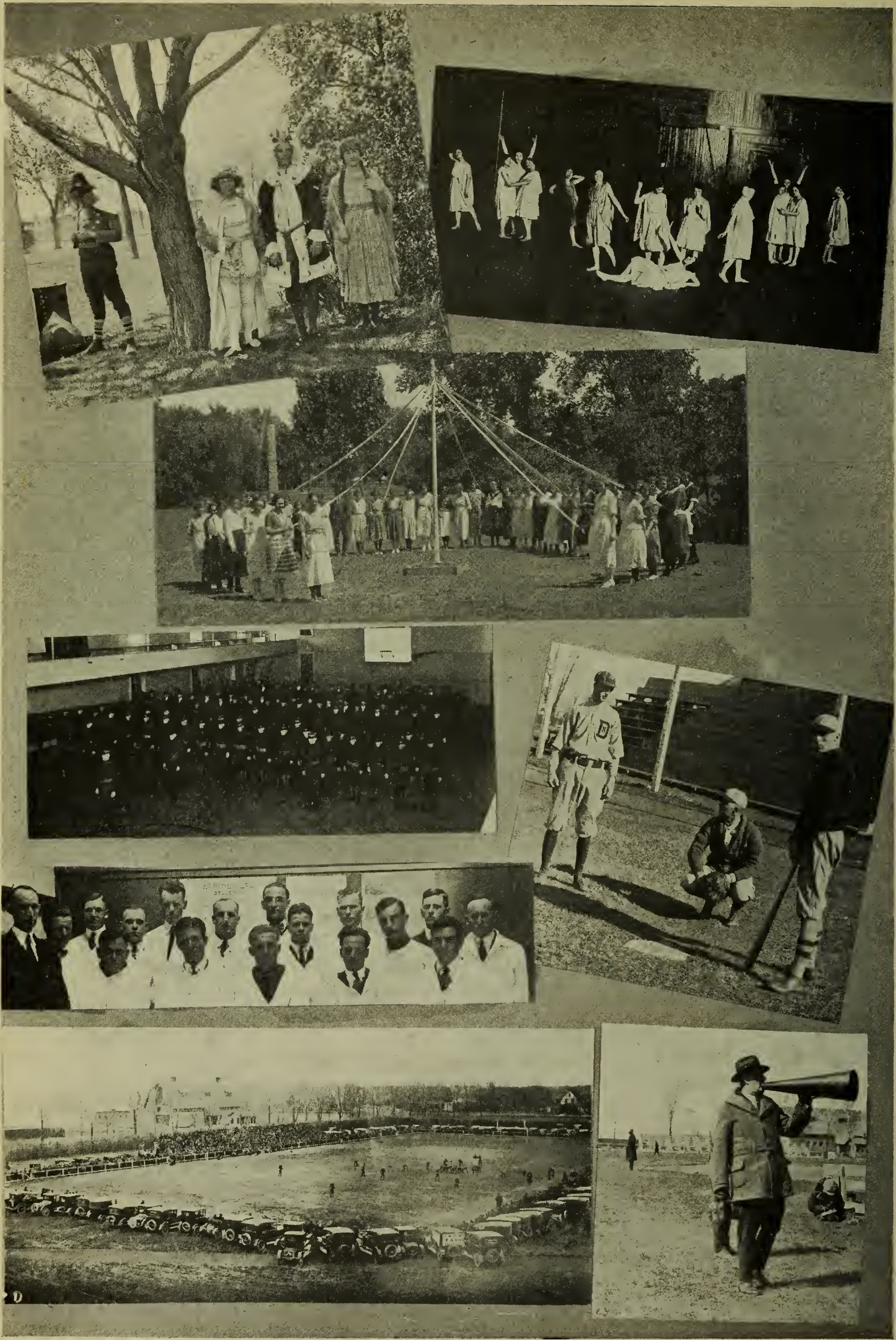
The present editor knows full well the truth of the saying: "You cannot draw blood from a turnip" from his endeavors during the present school year to find students possessing some journalistic ability to assist in the conduct of the paper. Not because there has been a lack of interest in this matter but rather a lack of qualifications. The writing of a news article, giving proper weight to the right thing, the choice of news heads that will arrest the reader's eye, telling the thing in an interesting way and giving the news item its proper place in the paper, is an art that comes only through training.

With the introduction of courses in elementary newswriting this coming term will come an awakened interest in journalistic training. There is no doubt that this interest will demand further courses in this field with the result that in the next two or three years there will be an established course in journalism. No greater field of opportunity is now open to the students of an industrial school such as this one than that of journalism. The extension worker, the county agent, the teacher, the investigator, the business man, and the engineer, find all kinds of chances to use the tremendous power of the press in some constructive way. The practical application of this training will be made in most cases in reportorial work for the student paper. The benefits of such training will be reciprocal both to the student and the college.

The business of a college newspaper such as the Weekly Spectrum is to present the activities of the college in a fair and impartial way. It should carry over a relation to the student that will help him to connect the nature of his own interests with those of the other departments. Time does not permit personal investigation. Limited opportunity is a weak excuse for those who have access to the newspaper and its weekly reports on departmental happenings. It is clearly the business of the college newspaper to keep alive this elusive interest in the affairs of the college at large.

There is also the matter of publicity. Much of our college life is known to the world outside only through the medium of the press. The Spectrum goes out each week to all the daily newspapers and all the leading high schools of the state.

(Continued on page 9)



Good Outside Activities Develop Well-rounded Student Life

Shades of the Little Country Theater. Dancers practice their art in women's gym.
More signs of spring.
For'ard, Harch! is a slogan of A. C.'s cadet corps. Prospects for another state championship look bright.
The architects have one of many similar clubs.
"Some team" next fall is the present prediction. "Reg" Colley '15, at an A. C. track meet.

The 1923 "Humdinger" Agassiz

By Philip Balsley,

Editor, 1923 Agassiz.

What is it? Who is responsible for it and where does it go? The Agassiz is the college annual of North Dakota's Agricultural College. The Junior class is responsible for its publication and it goes to the four corners of the United States.

The Agassiz of each year contains a resume of yearly college doings. It is a recapitulation, as it were, of old faces with the addition of new ones that appear each year. The Agassiz is a barometer of the progress of our A. C. A good school publishes a good annual. If there is plenty of vim, vigor, cooperation and school loyalty in a student body, good annuals follow as naturally as the balmy days of May follow the chill winds of April. Such a combination of fundamentals we have at old A. C.

True loyalty to our Alma Mater is not developed in the first few days of school and in some cases is never developed, as is illustrated by the following experience of a salesman of the "Humdinger" Agassiz. This salesman had approached a certain Freshman relative to purchasing an Agassiz. The following dialogue ensued:

"Want to buy an Agassiz", queried the salesman, with a prospectus under his arm.

"How big a book is it", was the return query.

"'The Humdinger Agassiz'", stated the salesman in one breath, "is going to have a three-color introductory section of campus views, twelve pages of scenics of the state, six three-color inserts, announcement divisions in the book, a section devoted to people taking post-graduate work, an 'Old Grad' section for our alumni, and a satire section. The book has nearly 300 pages and will be bound in a beautifully decorated fabricoid cover, and—" pencil poised and breathlessly—"How did you say you spelled your last name?"

"Guess I'd better not buy one," decided the frosh, "because I've got about all the studies I can possibly carry now." The salesman is convalescing slowly.

However, that state of quiescence toward school passes with the Sophomore year and the Junior year finds us with a large, fast developing bump of A. C. spirit and patriotism. Our senior year makes the "growth" incurable and inoperable. The malady is continuous for alumni. The A. C. spirit never dies and, as evidenced by the large number of alumni subscriptions to the Agassiz, rarely does it slumber.

The Agassiz contains a summarization of the college year's activities, it records in the black and white of printer's ink memories that become indelible.

Get into the game, is good advice to prospective students, be a booster and after you have your sheepskin, after the final pipe of peace at midnight of your commencement day when your college career is ended and you take the gage of everyday life, you will never have cause to look back with sighs of regret. You won't have to say, I missed the fine things, the big things of college association, the contact with my fellows, the broader vision that comes from getting the common touch.

Splendid A. C. cooperation and a splendid Agassiz are synonymous.

Continued from page 7

With the awakening of the college to the possibilities of an alumni and former student publication, College and State, and the student publication, The Weekly Spectrum, comes a new era in the history of North Dakota Agricultural College which should give to this phase of student activity the dignity due it.

Surveying A. C.'s Athletic Program

By Louis Duerner,

Football Captain for 1922.

The athletic program of the Agricultural College is very much the same as that of any large institution,—football in the fall, basketball in winter, baseball and track in the spring. Our aim is to turn out winning teams but in our struggle to acomplish this object we do not overlook the big thing in competitive contests—fair play. We enjoy winning, but realize that it is no disgrace to lose to a better team and, if our boys do their best and lose, our morale is not weakened.

A school's athletic standing cannot be established by taking the results of one school year, but our brag is not what we have done, but what we are doing and what we intend to do. This year's football practice started ten days before the opening of the school and Coaches Borleske and Watkins spent the entire time teaching the fundamentals of football and getting the men into proper physical condition to withstand the knocks that were to come. With the opening of the school a team had to be chosen and team work developed as a game was only a week off. If two more weeks could have been spent with fundamentals the season's results would have been different. The season was not wholly disastrous, as the following scores show:

Jamestown College	0	A. C. 0
Aberdeen Normal	0	7
Moorhead Normal	0	37
South Dakota State	54	0
University of N. D.	38	3
Fargo College	7	19
Montana University	7	6

Basketball practice started with the winter term and the season is just ending, with prospects for a championship team. No team played by A. C. so far this season has escaped defeat at its hands. The scores thus far are as follows:

Knights of Columbus	13	A. C. 25
Moorhead Normal	19	21
Concordia College	12	20
South Dakota Wesley	8	32
Y. M. C. A.	5	36
Moorhead Normal	13	15
Jamestown College	17	28
Knights of Columbus	15	28
St. Olaf College	24	27
Y. M. C. A.	13	46
Fargo College	18	32
Concordia College	15	39
South Dakota State	27	28
South Dakota State	27	19
Ellendale Normal	10	44
North Dakota University	22	23
North Dakota University	28	20

With the close of the basketball season basketball and track work will start. Spring football practice will also be started this year as soon as the weather permits. If the weather conditions will permit, outdoor baseball practice will begin at once; if not, the teams will have their drill in the gymnasium. With eight of last year's championship baseball team in school, we are looking forward to a very successful season. Track has always been more or less of a side issue, but now that a North Central Intercollegiate Conference has been formed, A. C. intends to put out a track team which will be a credit to any school.

The new North Central Intercollegiate Conference consists of North Dakota Agricultural College, North Dakota University, South Dakota University, South Dakota State College, St. Thomas College, Morningside College and Creighton College, with three more colleges contemplating joining. In order to be a contender for the conference championship in football four games must be played, and in basketball six games, of which four are to be conference games, must be played. A track and field meet is to be held each spring and the team scoring the highest number of points will be proclaimed conference champions.

Our chances for winning teams in next

Continued on next page

Cadet Corps Makes Marked Growth

The following quotation is reprinted from the Army and Navy Journal of February 4, 1922.

"AFTER having passing through death and resurrection, the R. O. T. C. Infantry unit at the North Dakota Agricultural College, Fargo, is showing unmistabable signs not only of a strong life but of a healthy growth. Due to conflicts in hours available for military instruction during the last academic year the enrollment dropped below the required minimum for the unit.

"In July, 1921, orders were issued from the War Department withdrawing the unit. The college authorities immediately took steps to have this action reconsidered. Due to the efforts of the Corps Area Commander and others, the desired result was obtained and early in September the unit was re-established. With the opening of the college in September it was early seen that the required enrollment could be maintained and exceeded. The class hours were so arranged as to avoid conflicts with other departments of the college and so as to allow of the handling of the students in small groups.

"The increased enrollment in the department resulted in a greatly increased interest of the students in their military instruction. This interest grew until one of the resulting effects was the petitioning of Scabbard and Blade for granting a company charter to the college. This petition has been granted.

"Plans are being made for the annual military ball to be held on March 17th, this having developed into one of the leading social events of the college year since 1916.

"Mayor F. B. Carrithers, Inf., is receiving much assistance in continuing the growth of the unit from Captain W. H. Evans, 3rd Infantry, who has recently arrived for duty at the college, as well as from Sergt. R. W. Schnitzius, Infantry."

The Army and Navy Journal, in which the above was published, is one of the two weekly papers which are devoted to matters relating chiefly to the national defence and their relation with the members of the Army and Navy. This paper reaches every station of the Army, Navy and Marine Corps, every ship of the Navy and to nearly all of the officers in the various branches of the national defence service.

Major W. F. Harrell, Infantry, arrived March 7 to take charge of the cadet corps at A. C., relieving Major Carrithers, who is soon to retire from active service. Major Harrell served with the First Division during the war, was twice wounded, received two American and two French decorations, took part in six major engagements, and received three citations. Reports of his army record, and an appraisal of his personality point to continuation of growth in the cadet corps.

Continued froom page 10

year's contests are good, even though many of this year's players graduate. The enlargement of the college and the installation of new courses is going to cause the largest enrollment the college has ever had, and we are looking forward to the enrollment of many high school athletics.

An N. D. Club has recently been organized at the institution, consisting of all letter men. The purpose of the organization is the betterment of the college, and it concerns itself chiefly with problems pertaining to athletics. Accurate information in regard to college student life is given by the club to anyone who desires first-hand information on the subject. The N. D. Club consists of A. C. athletics and is anxious to do all in its power to help other athletics, regardless of the school they are attending or plan to attend.

Fraternities Play Important Role at A. C.

By S. Lynn Huey, '22.

No attempt is hereby made to go into detail concerning the fraternities and sororities at the North Dakota Agricultural College. Suffice it to say they play a very large part in the school, both scholastically and socially. The purposes of both organizations are much alike in that they seek to promote a better fellowship among kindred minds and to create a deeper and more lasting devotion to the college.

Fraternities and sororities on the campus may be divided into three classes, social, professional and honorary technical.

At present there are two social fraternities and two social sororities on the campus. Theta Chi, the oldest fraternity on the campus is purely a social national fraternity. The other social fraternity, Alpha Kappa Phi, is a local organization. Both of those fraternities maintain chapter homes near the campus for the benefit of their respective members. They aim to promote good fellowship, high ideals, zeal and fidelity in the college.

The two social sororities, Achoth and Delta Phi Beta, are both prominent in school affairs. The former organization is a local one, founded in 1908. Until recently they have been without a chapter house but of late have rented an excellent house near the campus. The Achoth sorority is a national social organization composed of Eastern Star women who are university or college students.

Among the professional fraternities we have Alpha Gamma Rho whose membership is restricted to men pursuing at least a two-year course in agriculture, and Delta Pi, an organization whose membership demands men engaged in the study of engineering. The former fraternity maintains a chapter house two blocks from the campus.

Last, but not least, come the honorary fraternities on the campus. In this division are two fraternities and one sorority.

Phi Upsilon Omicron is a national home economics honorary sorority composed of college women interested and actively engaged in home economics work. They maintain a chapter house near the college campus.

The two honorary fraternities are Alpha Zeta, which demands high scholarship, leadership, and at least two years work in agriculture; and Phi Kappa Phi a purely scholastic fraternity admitting a small percentage of the graduating class having the highest scholastic marks for the entire four years of college work. Its membership is not limited to any course and both men and women are admitted.

Such, in general, is the fraternal situation at the North Dakota Agricultural College, and so necessary is it to our well being that it would be hard to conjecture what would happen if the institution were deprived of them.

Thomas Jensen

This picture is not an example of before and after taking, but is a likeness of Thomas Jensen, former student at A. C., before and after sailing for home from the scene of his gold mining interests in Alaska. Nor is Mr. Jensen sprinkling his lawn in the illustration. He is standing beside a "giant" used in washing down gravel ledges in hydraulic gold mining. At the meeting of the Polytechnic Society at A. C., March 8, Mr. Jensen gave an interesting illustrated lecture on his experiences and on conditions in Alaska. His father, who lives in Fargo, took part in the early gold rush to Alaska, and unlike many others, he made a "strike."

Literary, Dramatic and Religious Organizations

By Theodore Thorfinnson, '21

"It is only by expressing themselves that people discover the talents which lie hidden within them—you never know what's inside a man or a melon until you tap them."

Even the man himself doesn't always know "what's inside him" until he finds some means of self-expression. Springs of talent lie hidden within men. Many of these have never come to the surface. Training people in self-expression; prospecting for the hidden talent of human beings; helping people to find themselves; these are the aims and purposes of the various branches of the department of public discussion and of the student dramatic and literary organizations.

Talent is of many different kinds and there are a great many channels thru which it finds expression. Since the days of ancient Greece the theatre has been one of the channels thru which people found expression for their literary and dramatic talent. The Little Country Theatre at the A. C. is a center for all dramatic and literary activities of the college community. Through the media of inter-class plays, inter-society contests in dramatics and debate, declamatory contests, community programs conducted by the students themselves, and classes for instruction in public speaking, the talent of the student body finds expression. Talent thus discovered is further trained by organizations formed especially for that purpose.

Dramatics Popular

In the field of dramatics the Edwin Booth Dramatic club of A. C. functions for the express purpose of training students who are interested in the drama. These participants in its annual series of plays receive invaluable training in dramatic expression and the entire student body is alive to the entertainment which they afford.

Literary Societies and Debating

The Athenian and Philomathian Literary societies train students in extemporaneous speaking, declamation, and debate. Declamatory and debating contests in which these two societies compete help to develop material for the college declamatory contest and for intercollegiate debates.

The Northwestern Debating League organized a year ago has for its purpose the training of students in public debate. Under its direction the three institutions, South Dakota State College at Brookings, South Dakota, Montana State College at Bozeman, and the North Dakota Agricultural College compete for honors in intercollegiate debate. Each of the three institutions furnish two teams of two each and in January of every year one contest is held at each institution. North Dakota A. C. has been ably represented in this field thus far. Both A. C. teams won their debates this year.

Literary and dramatic organizations at the college include: Edwin Booth Dramatic Club, Athenian Literary Society, Philomathian Literary Society, Castalian Literary Society (High School), Hesperian Literary Society (High School), The Agricultural Club (industrial course), and the Northwestern Debating League.

A. C. Religious Organizations

A strong, healthy body and a well trained mind are essentials to sturdy manhood and good citizenship.

With this truth in mind the old students and alumni of the A. C. and loyal friends throughout the state have erected at the college gate a building within which functions the Young Men's Christian Association. Its fundamental purpose is the moulding of sterling, four-square character in the young men who come to the A. C. The activities of the association are recreational, social, and religious in nature. The Y. M. C. A. building serves as a college home for men of A. C. Just as the Y. M. C. A. at A. C. functions for the men, so does the Y. W. C. A., which occupies a part of the building, function for the women students. Prospects are that a separate Y. W. C. A. building will be erected by the Y. W. C. A. within the next few years.

Increased Summer Session Enrollment Predicted

More Opportunity to "Make Hay While the Sun Shines" Follows Expansion of Summer Term Work.

Plans for a more inclusive summer session at the Agricultural College, to meet the demands of teachers, high school and college students, have been formulated for the six weeks term which starts June 13 and ends July 21. Indications point to an increase from the enrollment of about 300 students at last summer's term.

Courses that will be offered during the summer term will be picked from the courses given during the regular sessions, and the term will be made an integral part of the regular year's work, according to an announcement by the summer session committee. To judge from the experience of last year, a large enrollment of teachers will attend the session. Many of the teachers will carry on work under the provisions of the federal Smith-Hughes law, which provides for training vocational teachers. Other teachers enroll to renew or to raise the grade of their certificates, or to substitute summer session work for teachers' examinations. Many high school students add to their credits by attending the summer session, and a number of regular college students are expected to stay for the term.

The provision by which high school students can add to the credits needed to enter the college by attending summer session has been found to be especially suited to the needs of many students in consolidated schools. Such schools often provide only for a year or two of high school work.

All teachers certificates may be renewed by summer school attendance, according to word received from Minnie J. Nielson, superintendent of public instruction. Last year it was found that many teachers had no previous summer school standings, and could not present enough credits to have their certificate completely renewed. The plan of extending certificates for one year, providing the teacher earned two and one-half credits in summer school, was then inaugurated by the department of public instruction. This plan will be continued for the coming year.

An early date for opening the sessions at the college this summer has been agreed upon, so that the term will not interfere with the harvest season. "Make hay while the sun shines," is therefore the summer session slogan.

Eight Scientific Organizations Thrive at A. C.

By Earl J. Heising, '23.

The scientific societies of the college play an important role in the life and education of the students of the institution. Their purpose is to consider subjects of interest that are not included in the regular college curricula, and to promote a feeling of fellowship among the students. Scientists, educators, technical men, and the students themselves take part in these meetings, and the subjects discussed range from home problems to those of the most scientific nature.

The student of engineering is interested in the modern engineering appliances; the agriculturist keeps posted on the latest farm problems; the architect meets the newer problems of construction; while the girls in the Home Economics Association discuss national social conditions. From these associations and discussions come knowledge not found in text-books.

The active scientific societies at the North Dakota Agricultural College this year are: American Association of Engineers, N. D. A. C. Pharmacy Club, N. D. A. C. Association of Home Economics, Agricultural Club, Power Machinery Club, Architectural Society, Draftsman and Builders' Club, and The Polytechnic Society.

Medical Service Promotes Student Health

Medical supervision of students at the Agricultural College, maintained to safeguard the health of all students who enter the college, and to determine their physical fitness for college work, is proving to be a splendid and popular service. A college physician has an office in one of the college's buildings, and students who need medical attention are given free service and are urged to report any illness.

Services of the college physician are one of the features of A. C.'s health program. Daily consultation hours are maintained by Dr. J. H. Fortin at his office and sick calls are made for students who are confined at their rooms or dormitories. Each student who enters the college is given a physical examination, and a report of his condition is kept on file for reference and for recording his medical record during his stay at the college.

A trained nurse, Miss Catherine Seed, is in attendance at Ceres Hall, women's dormitory, and a hospital apartment is maintained in the hall for the convenience of women students who are not residents at the dormitory. All women students are also required to take regular physical training under competent supervision during the first two years at the college. Men students are required to take military drill during the same period of time.

An additional feature of the health service of the college is the drug dispensary which the school of pharmacy has opened this year. Prescriptions for students written by the college physician are filled by registered pharmacists of the department.

Students who require special care are referred to specialists, and a sick benefit fund is maintained to aid these special cases of students. Every means is taken to conserve student health, and results point to the success of the health program.

ACTIVITIES CENTER IN SCHOOL OF MUSIC.

Consistent with the policy of the college to furnish adequate training for a well-rounded education, and to stimulate healthful outside activities for students, a School of Music has had an interesting history at A. C. since its inception 21 years ago.

Technical instruction in piano, violin, and band and orchestral instruments is given to students who wish to continue their music at school, who want opportunity to practice their music during the school term, or who are interested in taking up music. Theoretical instruction is also in prospect, but is not now included in the work offered by the department. Miss Olivia Edelbrock has 35 piano pupils at present, and C. H. Dragert is giving violin instruction.

Fundamentally the school of Music exists for the benefit and the pleasure of the student body. There is the band, which now numbers 38 pieces, and which is under the direction of Dr. C. S. Putnam, director of the school. The band is present at all athletic contests, and at other ceremonials required of a cadet corps band by the military department. Its annual concert was given on the evening of January 19 this year. The college orchestra consisting of 23 pieces this year, is represented at various receptions, dances, and dramatics held on the campus. The glee club of 35 men plans its state tour during the coming spring vacation.

The school was born in the fall of 1901, through the efforts of C. E. Nugent and Harry Rudd, students at the college at the time, in organizing a band. In January 1903, Dr. Putnam, a musician and a Fargo physician at the time, became an instructor in mathematics at the college, and due to his keen interest in music he became the leader in A. C.'s music circle. Since he took over the leadership of the band of 16 pieces in April, 1903, he has led college musical organizations each year except during the years 1913 to 1915 when B. A. Orr was director of music. The music for the college song, "The Yellow and Green," was composed by Dr. Putnam.

The series of stories of college departments and what their alumni are doing, which have been appearing in successive issues of College and State, will be continued in the next issue.

Among Our A. C. Folks

"A college without loyal graduates would be as barren a thing as an idea without accomplishment."

Charles G. Carlson, '15, Chicago, agronomist with the crop department of the Hartford Fire Insurance company, writes, "College and State, latest edition just received. You are doing a splendid work—a useful work. Here's to your continued success."

Charles A. Gordon Michels, '09, more familiarly known as "Mike," writes from the Massachusetts A. C. at Amherst where he is professor of farm crops. He requested a few wheat heads to show the natives of the East what the staff of life looks like in its wild state. Mr. Michels states that he had 384 students taking farm crops last term. Members of the class of naughty-nine are looking up in the world.

Arthur Wilcox, '15, is farming near Kempton, N. D. His wife is also a former A. C. student, and visitors at Kempton speak of the splendid A. C. spirit at the Wilcox home, as reflected for example in their interest in and hospitality to A. C. former students.

T. W. Thordarson, '16, is employed by the Northern Pacific railroad as a business manager of a colonization project in the state of Montana. At the present moment Thordur is spending a vacation at Los Angeles, California.

P. D. Kellog, F. H., '18, is now farming near Monango, N. D.

Harry Slingsby, '07, the first graduate of A. C.'s school of Chemistry and now assistant superintendent, Minn. Linseed Oil and Paint Company, was honor guest at the first meeting of the new Chemistry Club, January 20, 1922, held in connection with a luncheon at the Y. M. C. A. Thirty-eight were present at the meeting, including 29 students, 4 alumni, and 5 staff members. Meeting will be held by the club once a month.

Nathaniel Crockett, '15, former A. C. cross country man, is farming near Langdon, N. D.

Mrs. Charles Porter, formerly Barbara Heidner, '16, home demonstration agent in Montana, appeared in a film, "The Happy Way," shown at a student convocation, February 13. She takes the part of a home demonstration agent in a story depicting farm home improvement. The film showed no love scene, but the facts are that the heroine later actually married Charles E. Potter, who appears as a county agent in the film.

W. G. Couey, '17, field crop inspector, Agricultural College, has prepared an illustrated lecture on "Potatoes in North Dakota," which were used in some of the programs for Diversified Farming Week, proclaimed by Governor Nestos for the week, March 6 to 11.

Births

To Mr. and Mrs. Arno A. Lorshbough, formerly Katherine Keye, '16, Fargo, a daughter, Katherine Lilla, on February 7, 1922.

MRS. MYRTLE PEARMAN KEENE, aged 52, wife of E. S. Keene, dean of the department of engineering of the North Dakota Agricultural college and formerly acting president of the college, died Saturday, March 4, at the family home, 1028 Seventh st. N., Fargo.

Her death came as a shock to the community as she had been well and active until Monday, when she was taken with an attack of acute appendicitis, which caused her death.

She was born at Champaign, Ill., Oct. 5, 1869, and is survived by her husband, five children, Margaret, Dorothy, Rebecca, Phillip and Virginia; a sister, Miss Minnie Pearman, who has made her home with the Keene family for years; two brothers, Ira Pearman and Dr. Ora Pearman, both of Champaign, and a half brother, Dr. Arthur Pearman of Rockford, Ill.

She was the daughter of the late Dr. John Pearman of Champaign, and she grew to womanhood at that place. She was a student for two years at the University of Illinois. She was married at Champaign to Dean Keene in 1893 and they came to Fargo that year, where they have lived since.

Mrs. Keene was a charter member of the Round Table club, and was active in local social and club affairs. She was particularly interested and active in the college affairs having to do with student life at the agricultural college.

During the war she was supervisor of the Red Cross work at the agricultural college, both for man and women and won high commendation for her efficiency in this work.—FARGO FORUM.

1922 Basketball Squad, Agricultural College

No team that played the Bison tossers this year escaped a defeat, although two teams of the 12 that were played, won succeeding games in a series.

Standing, left to right: Grieves, Mares, Gardner, Murphy, Narum, Bohnsack. Seated: Hildre, Trowbridge, Sivertson, capt., Flem, Wilson, Bute. Coaches Watkins and Borleske will have most of the men back again next year.

Work on New Agricultural Building to Start Soon.

Accommodations necessary to provide for increased number of students will be afforded by the erection of a new agricultural building, the ground for which will be broken as soon as possible. Faced with the necessity of broadening out, a new plan for the future development of buildings and grounds has been drawn by designers, and will be followed in placing the new building. The plan calls for a greater concentration of buildings on the grounds.

The department of agriculture and the extension division will occupy the new three story building, according to officials. A central portion of the building will be built with the funds now available, with dimensions of 90 by 50 feet, and plans call for additionel wings to the agricultural building in the future. Whereas the buildings on the grounds now extend largely along a single roadway, plans call for grouping buildings that will be erected in years to come with the present buildings to fit the new landscape design. Gradual changes in landscape gardening plans will be made according to the new general policy, which allows for an indefinite extension of the college grounds.

The new building will occupy a site including the ground now occupied by Francis Hall which will be moved about 225 feet south of its present location.

Stanley A. Smith, head of the department of architecture, A. C., was recently appointed by the Minnesota chapter of the American Institute of Architecture to serve on its committee on education. Professor Smith attended the annual convention of the Minnesota chapter held at Minneapolis in January.

Plans for a record-breaking summer session—in attendance and in inclusiveness—are being formulated for the six weeks beginning June 13 and ending July 21. The work of the summer session will be made an integral part of the work offered during the regular sessions, according to Dean A. D. Weeks, chairman of the new summer session council.

The Agricultural College Education Club, consisting of 40 students interested in promoting the work of the School of Education at college and after graduation, is a new student organization on the campus. Meetings are held once a month. Officers of the club are: Bernice Noyes, Cando, president; Lester Bullard, Casselton, vice-president; Marian Pannebaker, Mapleton, secretary, and Huber McClellon, Larimore, treasurer.

"Mechanics of the Household," by Dean E. S. Keene, was recently adopted as a textbook by the Board of Education, Detroit, Michigan.

A course in journalism will be offered for the first time at A. C. during the spring term under the direction of the department of English. News writing and a survey of the field of journalistic writing will be stressed in the course, and prospects for additional courses are to depend upon the interest manifested in the initial course.

Junior design students in the department of architecture will compete for a silver loving cup during the spring term donated by the faculty of the department. A special problem in design will be the basis of the competition. The cup will bear the names of the winners each year, and will be in the possession of the winner one year.

Non-commissioned officers of the R. O. T. C. met and formed an organization January 25 which will be an adjunct to Scabbard and Blade, honorary military organization, which recently granted a chapter to A. C. Officers of the new N. C. O. club are: president, Oscar L. Hanson, Valley City; vice-president, Benjamin McCaul, Ayr; secretary-treasurer, Harry Swanson, Fargo.

Edwin Booth Dramatic Club's winter term play, "The Bonnie Briar Bush" was played January 20 in the Little Country Theatre to a packed house by a cast of 17 students. Splendid interpretations of each character were given in the college's annual winter dramatic classic.

Alpha Zeta, honorary agricultural fraternity, recently announced the pledging of Fred Wilson, Leal, and George Mikkleson, Garske. The freshman who makes the best scholastic record this year will be presented with a loving cup by the fraternity at its annual smoker next fall.

Two debating teams representing A. C. at South Dakota State College and at Montana State College secured a double victory January 23, upholding the afirmative and negative of the question, "Resolved, That the United States should grant the Philippine Islands independence within the next five years." Clifford Peterson, freshman, Dawson, and Jonas Sturlaugson, freshman, Svold, upheld the affirmative against South Dakota State, and Ethel McGuigan, senior, Chaffee, and Snorri Thorfinnson, Mountain, took the negative. Michigan Aggies and Penn State will send teams in April to compete in debates with A. C.

The department of botany and plant pathology is again receiving reports of the progress and appearance of plant diseases throughout the state as a means of cooperating with the Bureau of Plant Industry, Washington, D. C., in its work of disseminating information to its workers and others regarding the appearance of destructive crop diseases.

Feeding schools held during February in 35 counties of the state stressed the revision of feeding methods so that materials necessary for balanced rations can be produced entirely on the farm. Feed crops best adapted to each locality were worked out, according to J. W. Haw, state county agent leader.

A Saddle and Sirloin Club, aimed to stimulate interest in animal husbandry among the students and throughout the state as well, was recently organized at A. C. under the following officers: president, Elmer Darling, Dunseith; vice-president, Earl Heising, Conway; secretary, Stanley Wilner, Tower City; treasurer, Harper Brush, Lisbon; and historian, Percy Judd, Cando.

The second annual model county fair was held by students in the industrial courses in the college's Little Country Theatre, January 28. Each class of industrial students prepared an exhibit illustrating some aspect of its work, and speeches, music, dramatics, and other features were included in the program.

The Northwestern Intercollegiate Conference, including ten of the largest schools in the northwest, was formed at a meeting of representatives of the colleges at St. Paul, February 20. Coach S. E. Borleske and Dr. A. F. Schalk represented A. C. athletics at the sessions. Included in the new conference are the North Dakota Aggies, University of North Dakota, Morningside College, South Dakota State, South Dakota University, Creighton University, College of St. Thomas, Des Moines University, Marquette University, and Michigan Agricultural College.

Officers of the new club of A. C. letter men recently formed at a meeting of 36 athletes of the college are: L. R. Sivertson, president; Louis Duerner, vice-president; William Gass, secretary; Claude Ebling, treasurer.

Huber McLellan, junior in education, made the highest average at the Agricultural college during the fall term, according to averages issued by the registrar. Honor students for the high school and industrial courses were Ethel Hutchison and Peter Stenerson, respectively.

The institutional average was higher this year than last year, with the most marked advance in the college department. Class averages show a steady ascendancy from 77.1 for the freshmen to 85 for the seniors. Among the organizations, members of Phi Upsilon Omicron, home ecenomics fraternity, rank highest, with an average of 88.8. Fraternity and sorority members have a higher average than those outside the organizations.

Dr. E. Robb Zaring, editor of the Northwest Christian Advocate, Chicago, told students in convocation Monday, February 13, that the highest form of art is expressed in a person's life or in his actions, rather than on the canvas, in a manuscript, or in sculpture. The only two things needed to produce the best piece of art are an ideal, and the power to express it, stated Dr. Zaring. Forms of art

Tear off here.

The Best Investment We Ever Made, Say Alumni

Time has tested the value of more training and more preparation. On another page prominent alumni of the college testify to the value of college training in their lives. President Coulter states that every hundred grown up workers want a captain to guide and direct them, every five hundred want a major, every thousand a colonel. Will you be one of those leaders? As you know, people do not advance, do not improve their opportunities, by just living from day to day. They grasp good opportunities and do their best—whether they are school boys and girls, or business men and women. It takes many years to obtain leadership in the school of hard knocks. Colleges offer a short cut. The best way is to get all you can in school and college and then launch out for yourself. For your convenience, an itemized list of the schools and departments of the Agricultural College is given below. Check at once the school or department in which you are especially interested, tear out this page, mail the slip, and more information regarding the courses, or personal advice if you wish, will be given you.

TEAR OUT AND MAIL THIS PAGE, HIGH SCHOOL SENIORS

☐ 1. School of Agriculture

General Agriculture
Agronomy—Crops and Soils
Animal Husbandry, and Poultry
Horticulture and Forestry
Dairy Husbandry
Farm Managem't and Marketing
Agricultural Education
Agricultural Entomology

☐ 2. School of Home Economics

Domestic Art
Domestic Science
Fine Arts

☐ 3. School of Mechanic Arts

Civil Engineering
Industrial Engineering
Architecture and Architectural Engineering
Mechanical Engineering
Physics

☐ 4. School of Science and Literature

Bacteriology
Botany and Plant Pathology
English and Philosophy
Geology and Mineralogy
History
Mathematics
Modern Languages
Public Discussion and Public Service
Social, Political, and Economic Science
Zoology and Physiology

☐ 5. School of Pharmacy.

☐ 6. School of Chemistry and Technology

☐ 7. School of Education

☐ 8. School of Veterinary Science

☐ 9. Miscellaneous Departments

Commerce
Music
Physical Training and Athletics
Military Science and Tactics

☐ 10. Agricultural and Manual Training Model High School

☐ 11. Winter Short Courses in Agriculture

Auto Mechanics
Domestic Science
Elevator Management

☐ 12. Industrial courses in—

Farm Husbandry
Home Making
Power Machinery
Drafting and Building

You may send me information regarding courses at the college, and particularly in regard to the course which I have checked.

Name ....

Complete address..

such as sculpturing, painting, music and poetry are concrete expressions of an abstract idea—are representations of bits of life. Any person can, however, live a whole artistic life of which these forms of expression are only small representations. Such a life would be beautiful if it expressed itself in acts for the common good. Everyone has a longing to give expression in some way to their inherent artistic nature, and while some accomplish this aim by writing poetry, everyone can do so by living life artistically. No life need be drab that does not live entirely in itself—that acts and works for the general, common good.

Eight high schools took part in the district basketball tournament held at the A. C. armory, March 10 and 11. The winners of the eight district tournaments held in the state will compete in the statewide tournament, March 24 and 25, at the Agricultural College.

Junior Prom, annual social classic at A. C., will be held in the armory, March 31st.

"Should our name be changed?" asks the Spectrum, student weekly at A. C. in its issue of March 3. The paper asks whether tradition should be disregarded and a new name adopted,—one more representative of the various courses and departments of the college.

More trained minds are needed in the industrial and professional life of North Dakota and the state Agricultural College is equipped to give more students the training which the increased development of the state demands, was a point stressed at the student convocation, February 28, by President Coulter, Dean Keene of the School of Engineering, and Dean Waldron of the School of Agriculture.

Three new bulletins and circulars issued by the Experiment Station and the Extension Division since January are:

Rat Virus Investigations, by the Veterinary Science department, bulletin 155;

Making a Paper Dress Form, Eulalia Church, circular 46;

Boys' and Girls' Club Handbook, H. E. Rilling, circular 41.

"Simple Farm Accounts," a text book and guide, has recently been published by Rex E. Willard, farm economist at the Agricultural College.

"I am taking work at the University of Wisconsin in education, of sufficient amount to make eleven semester hours," writes Fred H. Hackett, principal, Wakefield Industrial School, Wakefield, Michigan. "My reason for doing this is to qualify for a life certificate.

"Built a new home all by myself last summer, a new baby girl came to us in June which makes a family of four now, the other youngster of three is a boy.

"Iron mining in this region is at a standstill, the only work for the people being city work. The mine owners must pay taxes whether they work or not, so the city has plenty of money to do things with. You can get some idea of the amount of money which comes into this town of 5,000 from the mines when I tell you that the schools alone drew $257,000 last June.

"The city is constructing a new community building to cast $250,000. It will contain a gym, swimming tank, auditorium, reading and billiard rooms, rest rooms and banquet hall and a club room.

"I like my work here and expect to stay another year as principal.

Apologies Porte Publishing Co.

VERILY, IT MAY BE TRUE—

That everything comes to him who waits, but to the sweet high school graduate everything may include a few bushels of disappointment caused by failure to jump into college when the opportunity loomed up. Many's the time the sins of omission have been compensated for in the nick of time—by entrance into the right school at the right time. Many's the person that justifies said sins by, "I wish I'd gone on to school," and similar sober sobs. Moral, my children,—Hop in! Navigate!! Act!!!

MARCH—A little of everything. The sun shines pleasantly. The first robin appears. Ditto the March hare. We don the athletic knee lengths. We run for cover. We sneeze—and sneeze—and sneeze. We buy quinine. We feel all right in the morning. We fare forth in overcoat, rubbers, and umbrella. We almost roast, leave the umbrella in a restuarant, rubbers and coat at the office, run home in a blizzard. That's March all over Mabel. It's a great life!

APRIL—"April showers" gladden the heart of the early radish and promote the growth of sturdy flowering plants. Showers of orders are the stimulating influence in affairs of people who have things to sell, and selling messages are the best rainmakers. Showers will come your way also following thorough training at A. C., making that life of yours thrive and blossom like the rose.

COLLEGE STATE

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A. C. Commencement Program Includes New Features

By Miss Marjorie Lieberg, '19

SINCE commencement is an annual event, considerable interest is evinced in its anticipation. The commencement program at the Agricultural College for the year promises to be most successful. The entire program will be opened by the Model High School exercises which will take place Wednesday and Thursday, June 7 and 8. The college commencement, on the other hand, is to be a week end affair. This arrangement will enable persons in business and otherwise to be present. The program is scheduled for June 9 to 12 inclusive.

Fifty-nine seniors will graduate in this year's college class. A detailed commencement program is included on another page of this issue.

The presentation of the senior class play on Friday evening, June 9, will be the opening event. "Grumpy" a four act drama by Horace Hodges and T. Wigney Percyval will be presented.

"This is the celebrated play in which Cyril Maude originated the part of an apparently half senile old man with a crusty exterior, but a wonderful kindly nature and the keen wit and indomitable courage of a Sherlock Holmes. The story deals with the robbery of a large uncut diamond and the shrewdness of the old man. The robbery takes place in the house of Mr. Andrew Bullivant, familiarly called Grumpy, by his granddaughter Virginia and his nephew Ernest Heron. The latter is bearing the gem to his employer in London and is about to pass the night in the house of his uncle. Seated alone in the sitting room after all have retired he is mysteriously set upon in the dark by an unknown assailant, rendered unconscious and relieved of the valuable stone. Through a white camelia, the stem of which has been tied with a woman's hair, with no other clue to guide him, the amusing old man, step by step, traces the perpetrator, fastens the guilt upon an unsuspected personage and in the end makes him disgorge the gem and so crowns the happiness of his nephew and grand daughter who love each other."

A splendid cast has been chosen and the production will undoubtedly prove to be the best class play in the history of the institution. Prof. A. G. Arvold is directing the play.

The program on the following day, Saturday, will begin at four-thirty with the senior class exercises in The Little Country Theatre. These exercises will include the president's address, the presentation of the hatchet by the senior class and its acceptance by the junior class, the class poem, the class prophecy and the class history by various members of the class. The alumni ceremonial will take place immediately afterwards. This event is one of the new phases of commencement and was originated with the idea of making more significant the passing of the student from active membership in the college to active membership in its alumni association.

Since its organization in 1903, the Alumni Association has become more and more active and it eagerly awaits an opportunity to associate itself more closely with its new members. The regular alumni banquet, at which all seniors are guests, and the alumni business meeting will take place at six o'clock in Ceres hall. During the evening President and Mrs. Coulter will receive the students and friends of the institution at the college library. Plans are under way for the Senior Swing Out and Alumni Ball which will take place in the college armory the latter part of the evening. The organizations in charge hope to make this strictly a senior-alumni affair in order to unite more closely the two groups. The Pipe of Peace Ceremony in which only Seniors take part will complete the day's program. Paul S. Reinsch, former American ambassador to China, has been secured to give the baccalauleate address Sunday afternoon, in the college armory. Mr. Reinsch is not only a noted personage, but is recognized as one of the finest speakers obtainable. The commencement concert, probably one of the most enjoyable of the commencement functions, will be given by the college band and glee club on the campus Sunday evening.

Monday, June 12, will be Commencement Day. The graduation exercises which will take place in the college armory in the morning at ten-thirty will be preceded by the commencement procession in which the seniors, alumni and faculty take part. Pres. John Lee Coulter will give the commencement address. He has chosen for his subject, "The Agricultural College and Its Mission." At the same time he will present the diplomas to the 59 graduates. The regular commencement luncheon at Ceres hall at which the senior and their parents are guests will be the concluding feature of the commencement program.

Authorities at the college hope that all students, friends and persons interested in the institution will feel at liberty to witness and take part in all of the commencement activities.

A. C. Important Factor in Teacher Training Service

"Land grant colleges have become an important factor in the training of teachers. Vocational education has now become so usual a phase of high school work that the necessity of training vocational teachers is everywhere recognized," states Dean A. D. Weeks of the School of Education. "Perhaps the high school of the future will have about one-third of its total program in vocational work. This would mean that about one-third of the teachers in the high schools will need to be trained to offer vocational courses. The land grant colleges are identified with applied science and vocational subjects, and it is but natural that the trend should be strongly toward the building up of teacher training departments in these institutions. Federal enactments, notably the Smith-Hughes act, lay upon the land grant colleges the obligation to establish and conduct work for teachers. The technique of vocational instruction is less known and is more difficult than that of teaching the subjects that have been in the schools during a longer period. The newness of the vocational subjects increases the difficulty of teaching them successfully.

"Work in education in state colleges comes at a time when there is general realization of the need of professional training for teachers. Once it was thought that anybody could teach who had himself gone to school. A later stage was that of last-moment preparation for teaching. Indeed this stage we have not yet passed through wholly. A stage is now being entered upon characterized by belief that teaching is an expert function to be performed only by those who have made careful professional preparation. It is probable that within a few years none will expect to be admitted to teaching because they have had a degree of schooling, and that there will be fewer who make up their minds late in the senior year to enter teaching and hope to be fully accredited members of the teaching profession on hasty and inadequate training for the work. We would think it absurd if John Smith, finding himself short of money, should apply to a medical board for permission to practice medicine for a few months until he could catch up in his personal finances.

"The school of education was organized

(Continued to page 4)

Alumni Association Crystallizes Grad Sentiment

By T. E. Stoa,
Secretary, N. D. A. C. Alumni Association

N. D. A. C.'s alumni association numbers nearly 500 members, not including alumni members of the high school department or the industrial course. The latter would increase the number over the thousand mark.

Members of the Alumni Association have pledged to their alma mater their support, their faith and their loyalty. Alumni organizations are rather unwieldy bodies. Members, as a rule, are widely scattered, and each very much occupied in his or her own pursuit. Their loyalty to their alma mater cannot be impuged, although many are content to let the others take the lead in developing and furthering the activities and interests of their organization.

The executive committee, annually elected, is in part designated to further these activities. Their energy and enthusiasm will obviously be measured by the enthusiasm of the members as a whole. Likewise, an active and energetic executive committee can do much to quicken the interest of others, and to re-awaken in them the spirit of old-time fellowship which so often seeks seclusion when separated from the things that once vitalized and stimulated the former students.

Activities of the association during the past year have been particularly encouraging. A greater interest of the members in one another and in our alma mater has been increasingly noticeable and gratifying to the committee.

Meetings have been held frequently and regularly by the executive committee throughout the year, the members usually meeting at a luncheon where they discuss and lay plans for the activities which they believe should be fostered. The first event staged was a home-coming day held Oct. 22. In point of number in attendance the affair was a success, but even more encouragement was the spirit of the occasion. A big barbecue was held in the evening. It was unanimously decided to make this feature an annual affair.

College and State has offered a splendid means of communication between members, thus reviving memories and renewing interest in one another. Through the activities of the committee, the alumni have been granted membership in the Athletic Board of Control. Our representative now aids in the direction of the affairs of the board. A number of activities are being planned for our annual reunion and the commencement season in June.

More important than all of these activities however, is the crystallization of genuine interest and sentiment behind energetic college officials to make the A. C. an outstanding institution in the state. We confidently believe that results will soon develop. We are looking forward to a marked increase in enrollment in the next few years. We as confidently hope and expect a strengthening in the college curriculum so that in all its branches, the N. D. A. C. shall take second place to no institution of its kind in this country.

We are on the way to more progress and we know that with such plans and aims in prospect we can expect 100 per cent support from all alumni and former students.

Burton Oderkirk, junior, Fargo, has been elected to head the Saddle and Sirloin Club, organization of animal husbandry students, for the coming year.

Five colleges of the state were represented at the annual state student Y. M. C. A. conference held at the Agricultural College Y. M. C. A., April 21 to 23.

Some 350 North Dakota high school students are studying vocational agriculture and mechanic arts in 15 high schools, accarding to E. H. Jones of the Agricultural College, and state supervisor of vocational training under the provisions of the federal Smith-Hughes Act.

Delta Kappa Sigma, new social fraternity at the Agricultural College, elected Arthur Ostman, Fargo, as its first president.

The Senior Ball, held May 5 in the armory, closed the social activities of the class of '22.

(Continued from page 2)

some six years ago. For a number of years teaching graduates have been going forth from A. C. and have left their impress in the public school field. A number of the young men took positions in Minnesota high schools in the earlier days of the movement for agricultural training. No small part of each graduating class has gone into school work."

By way of illustration the following names from the classes of 1918, 1919 and 1920 are given. These persons were enrolled in curricula or courses in education.

Class of 1918:—Olive Berg, high school, Gardner, N. D. Maizie E. Gilmore, high school, Minnewaukan, N. D., home Carlyle, Mont. Marion Johnson, Mrs. C. A. Williams, Fargo, N. D. Anna Kellogg, Mrs. L. A. Willis, Riverside, Cal. Genevieve Kelly, high school, Mankato, Minn. Eugene Ross, state hotel inspector, Agricultural College, N. D. Clara Sorenson, high school, Webster, N. D.

Class of 1919:—Brynhilde Bergstrom, Granite Falls, Minn., home, Cooperstown, N. D. Fern Briscoe, high school, Larimore, N. D., home, Fargo, N. D. Mabel M. Hollis (Mrs.,) supervisor home economics, Fargo, N. D. Marie Huey, high school, Fargo; home, Wyndmere, N. D. Marie Kirk, high school, New Rockford, N. D.; home, Devils Lake, N. D. Adelaide Laurie, high school, Mandan, N. D.; home, Crary, N. D. Marjorie Lieberg, instructor, Agricultural College, N. D. Grace Mares, high school, Hope; home, Wheatland. Beulah Watson, high school, Devils Lake; home, Fargo, N. D.

Class of 1920:—Delia C. Aaskegaard, high school, Hillsboro, N. D. Wm. W. Barr, Smith-Hughes work, Bowman, N. D. Leah M. Bird, Bennet Academy, Matheson, Miss. Margaret E. Chandler, high school, Glyndon, Minn. Mae E. Dennis, high school, New Salem, N. D. Bernice H. Derby, high school, Red Lake Falls, Minn. Ruth G. Fisher, high school, Petersburg, N. D. Mayre A. Healy, high school, Lidgerwood, N. D. Pauline W. Holl, high school, Bowbells, N. D. Hugh M. Robinson, high school, Webster, S. Dak. Cora M. Stewart, high school, St. Thomas, N. D. R. Dell Stewart, high school, LaMoure, N. D. Esther I. Woldy, high school, Lind, Wash.

Let's Plan Local Alumni Clubs

GEORGE C. MAYOUE, '18

THE alumni in every community of North Dakota should get together and organize a local alumni unit. The prime motive of such local organizations would be to carry our Alma Mater to success in all scholastic possibilities and to strengthen the work of the alumni association. By creating such local units our state college will have a fair representation in every part of the state.

Through the activities of the local organizations the alumni will become more firmly linked together, the alumni associations will acquire prestige and power as an organization and will give it a just recognition as an association. Finally, the A. C. will grow larger and stronger.

The larger and greater our Alma Mater grows the more credit and recognition will come to us as alumni. There is no question but that the value of a degree depends upon the standard and the reputation of the institution from which it was obtained. Therefore, it behooves us to get busy and do actual things which will make our state college grow. I believe that right now our Alma Mater is in the budding stage. Whether or not this bud will bloom into a perfect flower will to a great extent depend upon the alumni and former students. How can the alumni make the institution grow? They can make it grow by getting high school students interested in the college and in getting students to attend this institution instead of going to some other school, or instead of not going to college at all. Just as soon as we can get more students in our college we can more easily get other support which is needed to keep up the college in its development into a great institution. I wish that the alumni would become interested in some such plan of local organization, which in turn will be of untold benefit to our Alma Mater.

The plan for a local alumni club or society would be to have such organizations in every town or city where it is possible. The organization could have regular meetings and entertainments, could keep in touch with the alumni association and with the college and its publication, and could outline a plan whereby the organizations could be an effective link between the college and the local communities. What do you think about the plan? Give the rest of us your ideas.

Science and Literature Aids Specialized Schools

By A. E. Minard,

Head, School of Science and Literature

IT is a matter of surprise to many people, even to some of our own alumni, that the North Dakota Agricultural College is maintaining a School of Science and Literature in which are provided the essentials of a liberal education. That we have a school of agriculture here everybody knows, but that agriculture is one of seven technical and professional schools grouped around a central School of Science and Literature which provides much of the natural science foundations common to all the schools, and provides also that general training in mathematics, social science, language and literature, which is essential in all professions, is not so well known. Yet ten of our forty college graduates this year, 60 of our 200 freshman, and 115 of our 500 college students are in Science and Literature. Whatever may be the state of mind of the public, the student population of North Dakota is discovering this important part of our institution.

While the departments constituting the School of Science and Literature have been organized under this name only three years, the departments themselves have been an integral part of the institution from its beginning, in fact being established here by both the federal and the state law, and there has always been a group of students registered and graduating in general science.

The first and fundamental purpose of the School of Science and Literature is to provide the service courses required in common by all the district technical schools. An adequate preparation in agriculture, engineering, home economics, or education, requires training not only in the courses peculiar to their fields, but also in the basic sciences like botany, zoology, bacteriology and geology, in mathematics, in history and the social sciences, in written and spoken language, in literature. A competent professional man cannot be made out of a person who as a man and as a citizen is a nonentity. A professional man must of course know his own special subject matter, but he cannot go far in his profession if he is deaf and blind to that body of knowledge, usage, and values found among intelligent members of all professions. Students recognize the importance of this general training and prefer an institution that makes adequate provision for it, even though they take less of it than they had hoped. And from the point of view of the institution it is desirable that these general science courses should not be under one specialized school or left scattered and distinct, but should stand together in a single organization. Thus the School of Science and Literature provides an essential part of the work called for in the curricula of the specialized schools of the institution, in fact about twenty-five to fifty percent of the courses required of their students.

In addition to providing instruction for students enrolled in all the other schools of the college, Science and Literature has a very substantial enrollment of its own. There are several reasons why this enrollment has occurred and why it will continue to be vital to a college basically devoted to the applied sciences. Many students on completing high school have not made a definite choice of careers. They may have an interest in agriculture, architecture, home economics, or industrial chemistry, but if compelled to register in such a course as freshmen would go to another institution where the choice was not at once forced on them. If they can register here in Science and Literature they can, while carrying on the fundamental subjects, become more familiar with the nature of the work and the opportunities in the different schools and make an intelligent choice with little, if any, loss of time. Thus students are constantly passing into the other schools

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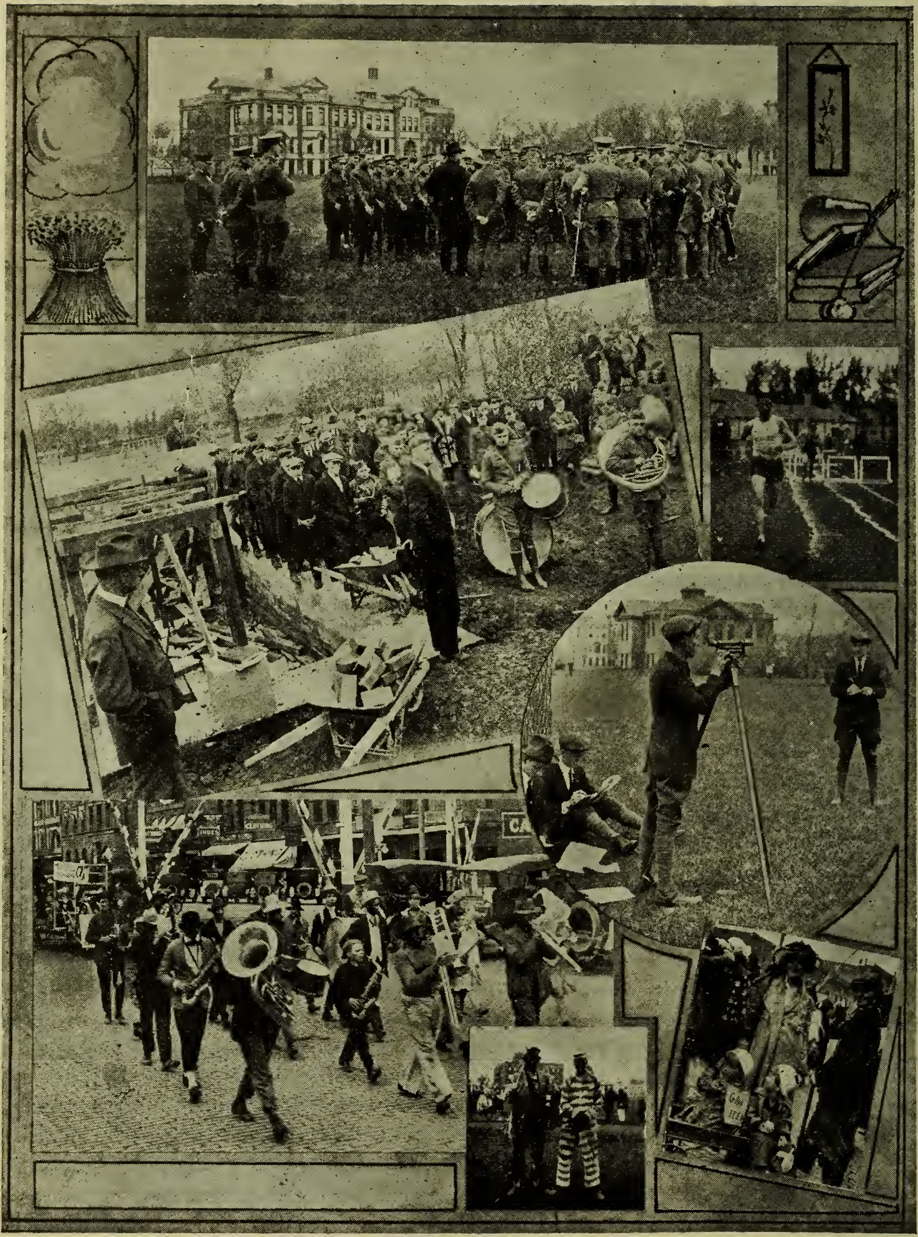

Spring Brings Out Varied Student Activities

Cadet Corps Holds Annual Inspections

Cornerstone of New Building Laid May 12

Some 75 High School Athletes Entered May Festival Track Meet

Engineers, Do You Remember When — — —

Gaycat Day, May 19, Looked Gay This Year to Say the Least

"Our State is Our Campus"

Committee of nine faculty members, alumni, and business men picks best slogan from 115 entries in prize student contest.

MOST significant among movements within the Agricultural College and among its former students during the past year has been the movement aimed at a greater and a still more useful A. C.—a spirit which has culminated to date in the recent student college slogan contest and in student plans for its use and fulfillment.

Realizing the unlimited potential value of the college to all of the people of North Dakota, and the need of demonstrating to more people the resources of the institution, former students, students, and others are pointing out that the college wields its influence for the good of the greatest number of people in the state, and that its campus is actually the whole state with its people. The slogan contests are a part of this general movement.

Can you beat the slogan which won the student contest? Try it. Send in your contribution, which you believe "sells" best the function, the value, and the spirit of the college. Some alumnus, some business man, some student has the pithy wording that we are still pursuing.

Slogans sumbitted in the student contest ranged from vague generalities to alliterations and couplets. Space prevent a review of the collection, but following are a few of the other contributions:

Bigger North Dakota Through a Bigger A. C.

We've a Course for You, of Course.

Make Our College Your College.

Greater Vision Through Applied Science.

Help Make N. D. A. C. and She Will Help Make You.

To Learn to Live.

The need of showing the place of land grant colleges in the country is being taken into consideration by alumni organizations and others.

So-called applied science, which is now widely recognized for its contribution to industry and to the state and the nation's business, would never have been developed without the land grant colleges, such as the Agricultural College, which new exist in every state, alumni members point out. The work of North Dakota's experiment station and extension division, both a part of the Agricultural College, testify for this state alone, their value in dollars and cents alone. The story of how the ravages of flax wilt, potato scab, rust, and other destructive plant pests were checked following investigations and years of experimentation at the college, how the solution of other problems are being undertaken at present, how the extension division carries valuable information into the farm and home, is pointed to as one of the institution's outstanding assets.

Graduates of the college, of both the regular collegiate courses and of the practical winter courses in mechanic arts and agriculture, form another asset to the state whose value cannot be definitely estimated. Preparing young people of the state for useful service, providing educated neighbors for them to make them more satisfied with their surroundings, is a part of the aim to provide the greatest service to the greatest number of North Dakota's population, say the A. C. enthusiasts. More useful information for the state's people, better farming and home life conditions, better health for her people, and continued satisfaction in the success of A. C.'s former students are the college's paramount interests.

The slogan "Our State is our Campus" is pointed out to be only a milestone or a additional stimulus to the bigger A. C. movement. More students in the college next fall, more graduates in the alumni organizations, more comprehension of A.

C.'s part in the state's development, and more service to all of the people of the state, is the goal of the movement. The slogan crystallizes the spirit and the sentiment behind the plan.

The annual Artist's Ball, given under the auspices of the college Art Club, was held May 6 in the art rooms, Science Hall. Among art collections recently exhibited by the art department in its rooms was one of 32 oil copies of such old masters as Rubens, Van Dyck, Tiepolo, Ribera, Veronese, Fran Hals, Nattier, Largilliere, Tinoretto, and Lys.

Home Economics Courses Supply Growing Demand

Miss Alba Bales

Head, School of Economics, N. D. A. C.

GRADUATES of home economics are constantly finding new fields of activity. So largely is this true of women trained in this line that it has become a real problem in the teaching field to find women backed with teaching experience. After one or two years of teaching they go either into homes, or into some of the many fields now open to home economics trained students.

In this day of opportunities for women to do things in the business and commercial field, there are few foundation college courses that prepare girls for a future more efficiently than the background afforded by a four year college course in home economics. Surely if a girl is going to marry soon after her college course no better training could be given her. If she is going into business or into the industries, many lines are open to the home economics trained person. After a study of textiles and clothing, a few months of experience in a large shop to secure commercial technique, if a girl has any special ability in design, she may work into one of the largest of the commercial industries. State institutions, the war department, hospitals, nutrition clinics, child welfare work, are all calling for women specially trained in the field of foods and nutrition. There are also many positions as health specialists open to students trained in this line.

Advertising bureaus are employing food specialists to handle their advertising of food products. Also, magazines and newspapers are clamoring to find food, clothing, and house management specialists who have had some training in journalism, to handle the technique in feature and news stories along these lines.

Tea room and cafeteria managers, experts in the various departments of hotels, household supervisors, managers of special shops, children's wear shops, homemade jellies and marmalade shops, and numerous other types are nearly always managed by home economics girls.

Interior decorators who have as a foundation a college major in textiles with related art work qualify readily for expert house furnishing positions either in large stores or in house decoration establishments. The extension field is open to women trained in home economics, with some agricultural training and experience. These are only a few of the many lines of work which home economics girls are constantly entering and in which they are making good.

Graduates of the N. D. A. C. are filling positions in all of the lines of work mentioned above at salaries ranging to $3500 and above. It is the aim of the department to keep its training thoroughly practical, with an unquestionably high standard, and one particularly adapted to the needs of girls of the northwest.

Much of the advanced household training will be given in the campus house where girls find the problems of actual house management, and where they must meet the emergencies and solve them by exercising judgment and initiative, thereby developing a manager's skill along with the class room work.

Enlarged Spring Sports Program Succeeds

By M. R. LATIMER, '23

WITH spring football, baseball, and track, the college this year has branched out into its greatest program of spring sports ever held here. Between 100 and 120 men have been reported for practice in these sports every night. Football attracted 40 men, baseball 37, and track 25.

Baseball and track men who are also in spring football have been practicing three nights a week in baseball and track, and the other three in football. Dacotah field is sprinkled in every corner with some form of sport every night.

To enable the men to complete such an extensive program a track coach had to be secured. Melvin Hodge, a Springfield Y. M. C. A. man, has been handling the track squad, Borleske, the spring football candidate, and Watkins, the baseball men. Lynn Huey, star tackle of the last four years, has been helping Borleske with the gridiron men every night. Huey is getting experience in the practical side of coaching, for he has accepted a position as coach of the Cavalier high school teams for next year.

The main work in spring football has been the developing of absolutely green material. Fundamentals were stressed more than anything else. This includes passing, kicking, rolling on the ball, catching punts, tackling, sidestepping, and so on. A little position play was taken up with the men singled out into the different positions, and all the details of the position were gone over carefully. The last two weeks has been spent in team play in which signals and the different formations of the backfield were stressed. Wilson, basketball man, Stubbee, Ruelle, and Kripe are some of the new men who have showed up as being considered as likely candidates for the backfield or end positions next year.

Baseball attracted quite a few men, but with no college teams in this section of the country the season was not very successful from a spectator's standpoint. The men learned quite a bit about the game, however, and if existing conditions change next year so that other nearby colleges have teams, we will be prepared to cross bats with any of them. Carleton college, Concordia, Moorhead teachers were the only college teams with whom we could secure a game. The Aberdeen and Fargo athletics of the Dacotah league were also taken on.

Jensen is still pitching for the school and is the main hurler of the nine, although Anderson, Bagrud, and Moran have upheld the mound position creditably. Most of last year's letter men have comprised the rest of the team. Gass, who was elected captain last spring, is holding down the shortstop job, Benshof is at third, Johnson at first. "Boots" Anderson, a new man is at the keystone sack, with Meldahl, Trumbull, and Steward taking the outer garden. Hull, Weinberger, Trowbridge and Newgard have been doing the receiving. Weinberger and Newgard received injuries the first of the season which laid them up for a short time and consequently the catching position was hampered, although Hull and Trowbridge did very well.

Track, since 1916, has been more or less of a "jinx" at the college since very few track men enroll in the school. This year was no exception, but Hodge was able to develop a few men that upheld the yellow and the green. Gass, high point winner of the Carleton meet last year, is looming up again as the big man on the cinder path. He took high individual honors in the interclass meet, which the juniors won, with firsts in the 100, 220, broad jump, and 220 hurdles. Roberts is also showng up as a fast man, and Burnette, last year's Fargo high track captain, can be depended upon for the middle distance runs and broad jump.

Coaching in football, basketball, baseball, and track will be given as a subject in the summer school session to allow col-

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Accept Our Cordial Greeting

Alumni of A. C. Send Welcome and Bits of Wisdom

Your Field is Broad, Chemists

By Leo Nemzek, '09

E. J. Du Pont de Nemours and Company,
Philadelphia

GREETINGS, Seniors of the School of Chemistry!

This must be an impersonal message, because I do not know you personally, nor do you know of me except by such history as may have withstood the elements of time.

There is, however, a bond of friendship which study within the same walls, and under the guidance of the same teachers, plants deep in the hearts of all N. D. A. C. graduates.

In 1909 I was in the same position that you occupy today. The full significance of commencement came in later years, with an appreciation of the opportunity culminating in graduation: a wonderful opportunity before that event; a still greater one afterwards, especially if the first was properly developed.

The importance of chemistry was convincingly demonstrated during the recent war. Industrial chemistry today beckons the aspiring and ambitious chemist. The field is broad; the recognition is ample. In my chosen field of paint and varnish the possibilities have as yet only been scratched. The big field welcomes your youth, your imagination, your initiative, your success!

There may be in the following extracts from some precepts which I read daily for the edification and incentive they afford, something which you can adopt with benefit:

"Bear and forbear."

"Learn as long as you live—you live as long as you learn."

"It is not easy to admit error—but it always pays."

"The great secret of success in life is to be ready when your opportunity comes."

"Anything worth doing has to be done against odds."

"Nothing worth having comes without effort intense and long continued."

"With faith there is no limit to human achievement—without it, little or nothing is accomplished."

"Most men have the ideas that would give them success, but they fail to put them into effect. Success is gauged by accomplishments. You are judged by what you do—not by what you say you can do."

"Appear successful. Men appraise at face value."

"Uncover your sources of energy by making up your mind to do things."

"There is no failure save in giving up. Unless you are beaten from within, you are bound to win."

Use Tested Common Sense, Grads

By Dr. Frank Darrow, '12

Fargo, N. D.

I HAVE been asked to give a greeting to you graduates of the School of Science and Literature and of the School of Education. I am tempted to think back to see what sort of greeting would have pleased me most and helped me as well.

The courses you have just completed have taught you tested common sense, and have taught you to test what appears to be common sense. That is my idea of a scientific education—first to learn as much as we can about things already tried and tested, and second to learn how to try out our own ideas and how to evaluate them. After this part is done, our life work is to continue to produce through known ways, and to attempt fearlessly what appears to be common sense even though it be new and untried. Our happiest moment should be when we hit upon something that appears feasible and is as yet unknown.

We need not wait for others to make advances. We all have an inborn tendency to modesty when it comes to our own untried ideas, a handicap which we need to fight. It would seem that the fear of ridicule rules the desire to put forth new ideas. Do not wait until you are disappointed by finding that some one has successfully tried out what you have thought of long ago. And above all do not wait for an opportune time to do something. It will never seem to come.

You have been taught that purity and liberality of the theoretical aspects are not degraded by the technical character of your calling. You have been taught to bridge the poles of craft and thought. Emulate the great examples of mankind who have shown a fair balance between the activities of sense and thought, faith and work, hypothesis and experience, and science and craft. Remember that the hand and the mind are at once both pupil and teacher. No great people have ever disclaimed the crafts nor spurned the poetic.

Speaking for former students of the college, I welcome you to our field and sphere,

rom the Field, A. C. Seniors

eniors of Courses From Which They Were Graduated

hoping that your time will be long, and by time I mean the measure of events as sensed and contemplated.

Come on In, Agric Seniors!

R. C. Dynes, '14,
County Agricultural Agent, Richland County, N. D.

THE state and alumni give you a hearty welcome.

You who have spent four years in special scientific study have been building a solid foundation which will enable you to go out into the state and perform a valuable service in the interests of agriculture.

Having spent five years in county extension work, I have had an opportunity to see many complex problems develop that must be solved by the farmers of the nation. In order to meet these problems we need and must have rural leadership, men and women with vision, experience, and scientific training who will command the confidence of folks out on the farm. This leadership can come from no other source than our agricultural colleges.

During the past few years agriculture which was once considered a "hay-seed" occupation, has commanded the attention of commercial and business interests. The farmers of the nation have come to realize that they must have representation, economically and commercially in our industrial system. Consequently, organization of agriculture, the biggest and most fundamental business in the world, has been progressing rapidly.

Individualism among farmers is the biggest enemy to a progressive and highly organized agriculture. This individualism which is a natural condition, resulting from methods of living, can only be overcome by community cooperation, and community cooperation calls for local leadership. It is up to you as graduates to fill this need for leadership, whether you go back to the farms or follow other lines of work.

As alumni, we greet you as you become a leader in the biggest business in the world.

To the Pharmacy Class of 1922

By Andrew Moore, '21,
Hope, N. D.

IN BEHALF of the alumni of the School of Pharmacy of the North Dakota Agricultural College I want to extend a most hearty welcome into the active field of practice to those students who are about to finish their course at the N. D. A. C.

You are to be congratulated upon your choice of profession, school, and upon having completed your professional course which equips you to step out into business.

No doubt some of you have already decided upon where you intend to practice, others are still debating whether to locate in North Dakota or the proverbial land of "milk and honey" of old. Having had some little experience in drug stores in several states let me invite your careful consideration of North Dakota before breaking tent for more propitious fields. A large percentage of the alumni of the school you are now leaving have located in North Dakota and each of them is building up a good business and is enjoying life to its fullest in the meantime.

North Dakota offers opportunities in the practice of pharmacy not to be found in many other states. It is reasonable to expect that with the advent of diversified farming there will be an increased immigration to our state from the more congested districts. This increase in population will mean new towns and new business establishments, among which the drug store will figure not the least prominently. Diversified farming is adding a new phase to drug store business. Potato culture, for instance, has created immense demands for paris green, formaldehyde, and bichloride of mercury, all of which the farmer purchases through his druggist. Other lines of farming bring with them their several demands, and the drug store in every instance enjoys its share of these demands.

Again on behalf of the alumni I welcome you into the field of pharmacy and hope prosperity may attend you wherever you may go.

Welcome! Home Ec Graduates

Mrs. Louise Campbell, '11
Home Demonstration Leader, Michigan Agricultural College

GREETINGS to the home economics graduating class of 1922!

I am reminded that old Father Time has emptied his hour glass for another year and with it is sending out a newly graduated home economics class from our dear old N. D. A. C.

As an alumna home economics extension worker, I wish to send greetings to you from the field. Whether you enter the class room, the dietitian's laboratory, the commercial world, or come to us in the extension field, we will always be looking to you, directly or indirectly, for stimulation in our work.

Because extension work touches both city and rural homes we will in turn have common interests, and when you see the home demonstration agent flying about in her little "flivver," attempting to develop various stages of home life and since the total number of agents are so few, won't you please extend the hand of good will to her? Let us know you and you know us.

Do not forget that whatever field you may choose, there will be both cloudy and sunny days, but on cloudy days keep your feet on the ground, but not your eyes, and if you stumble, stumble forward.

Make your first year's effort after graduation outstanding because of your superior quality of work. Your high standards and your high ideals will reflect most favorably on our Alma Mater, and on the home economics profession.

We in home economics extension service wish you success in your new field of endeavor.

Greetings Engineers—It's Up to You

By A. Grad

TO REFLECT on the slumbering industrial resources of North Dakota is sufficient to make a grad in the field realize the part that you new recruits into the ranks of graduate engineers can play in this state alone. We welcome you as fellow alumni and as prospective builders of North Dakota.

After you have been in the field a few years you will see that a long line of engineers with initiative, imagination, training, and industry are going to be called upon to transform gradually the state. Good roads are going to be built, some one is going to evolve new uses for the tremendous lignite deposit in the western part of the state, others are going to develop the growing interest in better homes and buildings, and so on. The field is open to you if you can see yourself in these developments, and can not only do well the jobs that are set before you in your work, but can imagine yourself doing just a little bit more on your own initiative.

You are going to find that work—plain common every-day industry—will be a very important factor in your progress. At the same time a proper proportion of good constructive imagination is going to a tremendous influence in your life,—the ability to observe clearly and to see a little more in things than the average person does. Welcome to our ranks. You're on your own resources now, and the future is up to you.

(Continued from page 9)

lege graduates who contemplate taking up teaching next fall a chance to learn the practical side of coaching. A separate course in coaching will be given next fall as a regular college subject.

S. E. Borleske, athletic director, will be in charge of the summer school work. He will have a class five days a week for six weeks, the full length of the session. He is planning on giving his men special instruction in the four major sports, football, basketball, baseball, and track. The last week of the course will be devoted to directing and organizing work which accompanies the position of athletic director.

In his discussions Coach Borleske will devote a great deal of time to the theory of the game which will be similar to the "chalk talks" given the teams during their seasons. He is also planning on giving practical work in the field a part of the time. The different styles of the famous coaches will be taken up so that the men can adopt the style they think is the best.

The present plans for next fall include a course in football coaching which will be given three days a week during the whole fall term. Basketball will be taken up in the winter term and baseball and track in the spring. The men taking up these subjects will go out for the teams to get a practical application of the work. Borleske not only thinks that such a course will improve the teams, but that it will enable the men to holding down successfully a coaching position after they leave school if they want to.

Such work has been one of Borleske's pet hobbies since he came to the school, but he has not been able to put it into action until this year when the new president, Dr. Coulter, allowed it to be placed in the regular college curriculum.

An increase of exactly one hundred students in college courses for the spring term over the enrollment a year ago, was recently announced by A. H. Parrott, registrar.

Women Students Complete Full Athletic Schedule

By Miss Ruth Andrews

Director, Department of Physical Education and Hygiene for Women

UNUSUAL interest has been shown of the department of physical edu- this past year in various branches of the department of physical education. The work is required of all college women for two years and of high school girls for three years. There are elective classes in athletics, dancing, apparatus, and teaching methods. Some 121 women are taking the required work and 84 are taking elective work in athletics, appartus and dancing.

The elective work naturally draws the most enthusiasm and support from the girls. In athletics basket ball, baseball, tennis, hockey, and track are electives. Last fall field hockey was introduced into the school for the first time. A short tournament was won by the college freshmen.

Unusual interest was shown in the basket ball tournament. The freshman won the inter-class tournament with 1000 per cent record. At the close of the season three games were scheduled, one between sister classes and two with Concordia. The freshman-junior team won from the sophomores senior team by a large score. The first game played with Concordia College was a decided victory for Concordia. The Aggie girls had a strong comeback however, and the next game was a much earned victory for them.

Baseball and track tournaments will be held near the close of the school year. The tennis tournament in which competition promises to be keen, has twelve girls listed. At the close of the tournament the Varsity players will journey to Jamestown, State Teacher's College at Valley City, and the University of North Dakota.

Natural dancing is elective. The class work is done in loose, light colored costumes and bare feet. The movements are large, free, and natural in comparison to the stilted movements of aesthetic dancing. Most of the dances for the May festival pageant, May 11 to 13, could be classified under this type of dancing.

Ten girls signed up this term for heavy apparatus and mat work. Work on the horse buck, trapeze, and rings was practiced. Mat work consisted of stunts. A small exhibition of the work was given before the faculty woman's club by a group of clowns selected from the class.

The women's Athletic Club has done much this year to push women's athletics. In this thoroughly organized association points may be earned for sweaters, letters, pins, and other awards.

During the May festival the department fostered four inter-high school contests this year, dancing, tennis, basket ball and track. About 136 girls participated in the events. Honors went to Fargo in track, to Concordia preps in basket ball, Barnesville in tennis doubles, and Fargo in singles, to Bismarck, Roosevelt High and Fargo High in dancing. The Aggie preps although seemingly inconspicuous on the campus have made a creditable showing in athletics. In the fall they won a hockey game against the upperclass team. Although they were defeated seven times in basket ball, the games were all lost by one or two points. The baseball season has just begun.

Alpha Zeta, honorary agricultural fraternity, elected Stanley Wilner, Tower City, to head the organization for next year. Other officers chosen were: Harper Brush, Lisbon, vice-president; Burton Oderkirk, Fargo, secretary; Fred Willson, Leal, treasurer; and George Mikkelson, Garske, historian.

Susan Martin, Fargo, represented the college Women's Athletic Association, at the national conference held at Boulder, Colorado, April 14.

Forty women students are studying sharpshooting in the class for women organized at A. C. by Capt. W. H. Evans of the military department.

A. C. Alumnae Enter Wide Range of Work

KATHERINE JENSEN, '04

Head, Home Economics Department, University of Idaho

WHAT should be the object of a college woman's education? According to Miss Gill's creed of work, it should fit a woman commercially for an insurance against reverses, socially for a comprehending sympathy with the world's workers, intellectually for a constructive habit of mind which makes knowledge usable, ethically for a courageous willingness to do her share of the world's work, aesthetically for an understanding of harmony relationships as determining factors in conduct and work. In checking the list of women graduates of the North Dakota Agricultural College which appears in the last alumni directory, it is quite apparent that the Agricultural College trains women to meet the various demands suggested in the above creed. Commercially, socially, intellectually, ethically and aesthically they are out in the world meeting the needs of society.

The vocations in one of the new fields of opportunity requiring women with specialized training seems to have attracted the largest number of women enrolling in the Agricultural College. This field more fully than any other gives women qualifications which will answer the question, "What should be the object of a college woman's education?" I refer to the field of home economics. It is only recently that society has begun to consider seriously the problem of training its girls and women for the vocation of home making. Yet, at least three-fifths of the women graduated from the Agricultural College already are married and keeping house. The majority of these advertently elected home economics as their major course in college. That may account for the fact that there is not on record among these graduates a single divorce case. Although all of the women graduates listed are not at present practicing the vocation of home making, it is quite apparent that all of them, to a greater or lesser degree, are practicing one or more of its branches and eventually hope to realize their ideals in homes of their own. Does not that answer the question why all girls should have some home making training? Is there any other kind of work which has such far reaching effects and makes such stupendous demands of woman? Analysis of the home-making job will clearly show that it embraces a wide range of vitally essential social services. These include the following lines of activity:

1. The care of the health of the family.
2. Selection, construction and care of clothing.
3. Selection, preparation and serving of food.
4. Care of the house and its equipment.
5. Care and rearing of children.

The expenditure of the family income is very largely the woman's responsibility and the way in which it is expended is a large factor in the welfare of the family. Such intangible aspects of family life as mental and spiritual development and responsibility toward the community and the nation are better understood by the woman who has had the advantages of a college education.

A short time ago, a farm woman in Michigan, who, through her college training was well prepared for her job, endeavored to show how home was debtor to mother and her figures show that woman's work in the home adds materially to the family income. They may also help to answer the question, "Does a college education pay?" No other course offers the three features inherent in the home economics course: first, the training for woman's greatest vocation, home making; second, training for wage earning occupations to be held before entering the home making vocation; third, training which functions in the daily life of the young woman, irrespective of her vocation. The women graduates of the agricultural college who are at present in the interim of wage earning, between college and the vocation of home making, are engaged in one of the following occupations: teaching, extension work, nursing, chemistry, bacteriology, real estate, clerk of court, and politics. The home economics course offers the young woman a wide choice of occupations. She may become a teacher, extension worker, dietician, social worker, cafeteria manager, research worker, textile expert or she may follow one of the allied lines.

A. C. Trains Biology Specialists

Besides the basic work which the department of biology, a part of the School of Letters and Science, provides for students in various courses in the college, a number of specialists in biology and similar subjects received their early traiining here. Other issues of College and State have dealt with graduates of other courses in the college. Following are a number of the graduates who took the regular course in biology as students at A. C. Scores of others have taken some of the courses offered in the department.

Merton Field, B.S. '95, M.S. '99, is now a physician and surgeon, running a hospital of his own and successful in his practice at Northfield, Minnesota. Mr. Field became a student assistant as a bacteriologist. His thesis for the master's degree was upon the bacteriological content of certain flax and wheat soils. He also became very efficient as a student of bacteriological water analysis and aided in the development of a number of important pieces of deep sampling of water in lakes, rivers and wells.

Thomas Franklin Manns, B.S. '01, M.S. '03, became scholarship assistant and later an assistant in the department of botany. His thesis for master's degree was worked out upon specific soil studies in bacteriology and involved the specific studies on the cause of flax wilt and similar root troubles in cereals. Mr. Manns is one of the leading plant pathologists of the United States and is now head of the Department of Plant Pathology of the Delaware Experiment Station. After leaving North Dakota Agricultural College, Manns was in charge of school work in the Phillipine Islands for three years. On his return he became assistant pathologist at the Ohio Experiment Station, and later became head of the department in the Delaware Experiment Station, where he is now located.

Charles M. Hall, B.S. '95, deceased Jan. 20, 1903, was a scholarship student throughout his undergraduate course at this institution in the departments of botany and bacteriology. While student assistant he did very notable work in bacteriological flora of milk. After courses of study in Johns Hopkins he became professor of geology at the North Dakota Agricultural College. While at the A. C. as undergraduate two of Mr. Hall's chief courses of study were

Carl E. Lee, B.S. '97, M.S., is known throughout the United and has worldwide reputation as a very able butter and dairy specialist. Throughout his undergraduate course he carried one or more lines of biological study, and particularly specialized in the bacteriology of milk and dairy products. He later studied at the University of Wisconsin and became attached with commercial dairy work at Cedar Rapids, Iowa. Later he was sent by the United States government to the Philippine Islands to superintend dairy development work there. Mr. Lee is at present one of the leading dairy experts of this country and is located at Milwaukee, Wisconsin.

Ferdinand G. Benn, B.S. '98, M.D. from Hamline University, specialized in chemistry, bacteriology and animal histology. He practiced medicine very successfully for a number of years at Kulm, North Dakota, and is now located as physician and surgeon at Minneapolis.

Hugh McGuigan, B.S. '98, Ph.D., Chicago University, M.D., Rush Medical, has made a success of the teaching of pharmacology, materia medica and therapeutics at the University of Chicago, and is now head of that division of work in the University of Illinois Medical School. While at the A. C. Mr. McGuigan specialized in organic chemistry, bacteriology, histology, embryology and physiology.

Lyman P. Bottenfield, B.S. '98, Birmingham, Alabama.

L. R. Waldron, B.S. '99, M.S., University of Michigan, came to the A. C. from the Michigan Agricultural College well grounded in biological work and throughout his undergraduate course at the A. C. continued a heavy line of biological study. He became student assistant and later instructor in botany. After taking the graduate course in University of Michigan he accepted the position of assistant professor of botany and zoology at the North Dakota Agricultural College and later went to the substation at Dickinson as superintendent. He is now plant breeder here at A. C.

Lee B. Greene, B.S. '01, M.D. from the University of Michigan, is a physician and surgeon at Edgeley, North Dakota. While at this institution, Mr. Greene was not only a leader among students in athletics, but carried heavy lines of work in the biological and chemical divisions.

Edward Darrow Stewart, B.S. '01, deceased 1920, carried one or more lines of work in the biological division throughout his undergraduate years, particularly centering his efforts on bacteriology and physiological studies. After some special work taken at the University of Wisconsin, he became superintendent of the Langdon Experiment Station, organized the work there and continued it very successfully to the time of his death. Mr. Stewart brought the demonstration work of the substation very closely to the farming public.

Oscar A. Thompson, B.S. '01, carried one or more lines in the biological department throughout his undergraduate course. As in the case of Mr. Stewart, he graduated from the general agricultural course. Mr. Thompson and his work as superintendent of the sub-experiment station at Edgeley are well known to the people of the state.

Mabel Leininger, B.S. '03, carried a full line of bacteriological work throughout her undergraduate course at the college, and was for a time student assistant in the department of biology. She is now the wife of Dr. Hugh McGuigan, '98.

Anna Stapleton, B.S. '03, carried a full line of work in the biological division throughout her course in the institution and later became a teacher in the schools of this state and Colorado. She is now Mrs. A. S. Mueller, 1735 Pontiac street, Denver, Colorado.

Among others who have done meritorious work in the biological department in former years are:

J. Fred Jenson, B.S. '02, was at one time member of the board of trustees of this institution, and is now in the real estate business at Grand Forks.

Herman B. Schmidt, B.S. '02, farmer at Epworth, N. D.

Aldyth Ward, B.S. '02, Bismarck, N. D.

Mary Hope Darrow, B.S. '04 (now Mrs. Ralph E. Weible, Fargo).

Katherine Jensen, B.S. '04, M. S., University of Illinois, now head of the Home Economics department, University of Idaho, Moscow, Idaho.

Alfred M. Sattre, B.S. '06, now instructor, Concordia College, Moorhead, Minn.

Ernest G. Schollander, B.S. '06, county agent, Williston, N. D.

John A. Swenson, B.S. '06, farmer and breeder, Aneta, N. D.

Charles R. Oshwald, B.S. '07, Los Angeles, California.

Oliver W. Dynes, B.S. '07, M.S.A. Cornell University, now instructor in breeding at Cornell University.

Charles H. Clark, B.S. '08, head of division in seed work, Albert Dickinson Co., Chicago.

George P. Grout, B.S. '08, M.S. University of Minnesota, dairyman and stock breeder, Nickerson, Minnesota.

Genevieve M. Holkesvig, B.S. '08, teacher, Great Falls, Montana.

F. Ben Otten, B.S. '08, M.D. Northwestern University, Wesley Hospital, Chicago, Illinois, specialized at A. C. in the structure of medicinal plants.

Elizabeth Rice, B.S. '08, now Mrs. C. I. Gunness, Amherst, Mass.

John C. Thysell, B.S. '08, was especially interested in botanical lines and sanitary bacteriology. He is now with the federal experiment station at Mandan, N. D.

A. R. Babcock, B.S. '09, Fargo, N. D.

Kent E. Darrow, B.S. '09, M.D., Johns Hopkins University. Physician and surgeon, Fargo.

Hugh J. Hughes, B.S. '09, director of markets, State Department of Agriculture, St. Paul, Minn.

Charles A. Michels, B.S. '09, M.S., University of Wisconsin, is now head of the Division of Genetics, Agricultural College, Amherst, Mass.

Levi M. Thomas, B.S. '09, chemist, Mid-West Flour Mills Co., Columbus, Ohio.

William O. Whitcomb, B.S. '09, M.S.A., Cornell University, is superintendent of the Montana Grain Inspection Laboratory, Bozeman, Montana.

J. A. Clark, B.S. '10, assistant agronomist in charge western wheat investigations, U. S. Department of Agriculture, Washington, D. C.

Mrs. Louise Hathaway Campbell, B.S. '11, state Home Demonstration Leader, Michigan Agricultural College, East Lansing, Michigan.

Lillian M. Pearson, B.S. '11, Mrs. Ralph Beard, Agricultural College, N. D.

Frank I. Darrow, B.S. '12, M.D., Johns Hopkins University, physician and surgeon, Fargo, N. D.

Albert B. Haskins, B.S. '12, D.V.M. Iowa State College, veterinary surgeon, Davenport, Iowa.

Clarence H. Waldron, B.S. '12, assistant botanist and seed analyst, Department of Agriculture, Raleigh, N. C.

Clyde H. Bailey, B.S. '13, M.S. University of Minnesota, is now professor of Agricultural Biochemistry, University Farm, St. Paul, Minn.

Thomas X. Calnan, B.S. '13, county agent, Barnes county, Valley City, N. D.

William P. Stapleton, B.S. '13, county agent, Malta, Montana.

John B. Wentz, B.S. '13, M.S. Cornell, professor of Agronomy, Maryland State College, College Park, Maryland.

Carl M. Yerrington, B.S. '14, was for a number of years biologist associated with the Biological Survey, U. S. Department of Agriculture, and is now county agent, Custer county, Miles City, Montana.

Grover C. Edwards, B.S. '15, was a scholarship student in the Department of Biology, for a number of years in charge of garden work and plant breeding during the summer. He has made a success as county agent in North Dakota and is now in a similar position at Roseau, Minn.

Theodore E. Stoa, B.S. '15, now assistant agronomist, Experiment Station, Agricultural College, N. D.

Barbara E. Heidner, B.S. '16, formerly a home demonstration agent in Montana, now Mrs. Charles Potter, Bozeman, Mont.

Robert B. McKee, B.S. '16, is now county agent, Kalispell, Montana.

Stephen K. Bjornson, B.S. '17, was student assistant in the Department of Biology and was for two summers in charge of the biological gardens. He is now superintendent of the agricultural branch of the Home Insurance Company, Chicago, Illinois. Mr. Bjornson was one of the early field crop inspectors of the pure seed laboratory, a line of work first initiated by the Pure Seed Laboratory Division of this institution preparatory to proper seed standardization and certification. He made a fine record as purchasing agent for forage supplies, Quartermaster's Division, Camp Grant, Rockford, Illinois.

Worth G. Coney, B.S. '17, taught for a number of years in the high school at LaMoure and is now special field crop inspector and seed analyst at N. D. A. C.

Martin Hagen, B.S. '17, was a scholarship student in botany at the A. C. He is now head of the Division of State Hail Insurance, Bismarck, N. D.

Sydney W. Hooper, B.S. '17, now assistant editor, Agricultural College, was a student assistant in Seed Laboratory, summer aid in the Biological Gardens, later field crop inspector for the division of pure feed.

O. A. Schollander, B.S. '17, farmer and insurance agent, Fargo.

John R. de Jong, B.S. '18, Bismarck.

George C. Mayoue, B.S., now assistant pathologist, U. S. Department of Agriculture, and state leader of barberry eradication campaign for the northwest wheat states, Agricultural College, N. D.

Mrs. Mabel M. Hollis, B.S. '19, supervisor of home economics in Smith-Hughes high schools, Fargo, N. D.

Alumni Letters

Dear Old A. C.:—

Yes, I mean "old" but only in the sense of past because my acquaintance with you is meager during the past few years and, at times, I have felt just a little disgusted with your antics, flirting as it seemed to me you were, with that roughneck, Old Politics. Of course, on account of the way that you get your living, you have to be, like the cigar store girls, pleasant and courteous to all those old gay birds, but it is not beholden to the dignity of your position to flirt quite so openly as you have been doing and I guess, from what I hear, your family has wised you up on that.

Speaking of your folks, I have had no news of but few of them for some years until your boosting alumni secretary, Ted Stoa, sent me some copies of College and State recently. I had not been receiving this important little chronicler of past and present college activities, probably because there were so many Andersons on the mailing list that a few were cut off to make room for more Johnsons and Olsons or because my name was the only Anderson there and the he, she or it that makes up the list thought it was there by mistake. The only one of your folks that I have been hearing from regularly is Claude Nugent and he doesn't know that it is me that he is sending his seed house circulars to and there isn't much college gossip in them, anyway,

As for myself there is nothing much to write of interest to the A. C. folks. Old dame Opportunity may have been prowling around my door or even trying to cave it in with an axe but there are so many knocking around with an axe to grind that I probably passed her up as a political or "starving India" solicitor so that all I have acquired, since you knew me, are a lot of grey hairs, a wife and two "Daddy I wants." But because there were always several other Andersons at the A. C. when I was there, I might describe myself as the one who used to attend the football banquets. I believe that I hold a record for football banquet attendance second only to Dean Keene's. Yes, I played "full stomach" at the scrubs' table under three different domestic science coaches, Reed, Childs and McCarty, and never muffed a pass or took out time. I was in the game all the time, as any of "our charming domestic science girls" of that time can testify. I ate turkey, and all that went with it, under the athletic direction of coaches from

Gochems to Rueber though perhaps I starred under Dobie because, certainly, his gangling, hungry looking frame was a horrible example to anybody's appetite and inclined to make a person gorge a bit, when his eagle eye was not on one.

I can not cite you any scholastic episodes that would differentiate me, though I don't mean to insinuate that I was not a good student for I certainly enjoyed the deluge of knowledge, or whatever those moist globules were, that used to spray from Dr. Hult's utterances, or stutterances, when he would crowd himself down over his English classes, even though I might have felt like the little tot who, when her mother daubed her face with a moistened handkerchief, said, "Well, tompany or no tompany, I aint dunna have my face washed wiv spit." Yes, and it hurt me just as much to laugh at Professor Halland's ancient gags and "would be witticisms" as it did the rest of you and I wilted with you at his sarcasm. And, though not much of a student in German, I recall Dr. Batt's guinea hen like cackle when he laid that joke about the "nine wheat cakes" but I don't remember that he cackled when "Fat" Keeney and the bunch conspired to try to sell him the ticket, to the first "All College Banquet," which was afterward donated. (I wonder if "Pa" Phelps was right as to what became of that ticket.)

Suffice it to say that I am still living within a few miles of my birthplace and haven't even tried to set the world on fire, although I might have thought that I was making my own little world smoke up a bit at times; and that I will be much interested in College and State and watch for the mention of those whom I knew at "Old A. C."

S. V. Anderson, Picket, N. D.

P. S.—How does Dr. Putnam acknowledge encores properly now that his "Hugheskers" of the old days are shorn?

S. V. A.

(Continued from page 5)

through the School of Science and Literature. As our high school is a feeder to the entire college, the School of Science and Literature is a feeder to the rest of the institution.

Then there is another respect in which our liberal school is of value. Four years is a rather short time to convert a high school boy into a professional man with any breadth of general training and depth of techincal equipment, as the older professions have already found. The demand for taking both the general science degree and the professional degree, the work overlapping during a five or six year period, is present here as it is at other institutions.

Then further, the college with its many varied courses must be flexible, must allow its services to be used in other than fixed groups and sequences. The outlined curricula of the different schools are believed to be the best arrangement of studies for particular purposes. But a student may legitimately desire some work in agriculture or home economics without desiring the entire outlined professional courses, most of the subjects in which are necessarily prescribed. Recently a North Dakota farm owner wrote to the college asking if a definite program of studies which he outlined and which included many subjects in agriculture, could be secured here by his two sons. While the plan could not be fitted into one of our published curricula it was entirely feasible in Science and Literature. Yet no one should imagine we permit random election of studies. The plan of the school is prescription of essentials, distribution for breadth, and concentration for thoroughness, the last element involving one-third of a four year program.

Of those who have completed the course in Science and Literature, a large number up to the present have gone into high school teaching. The state needs the teachers; it imports hundreds every year. And the college should have some of its own product in the high schools, the prime source of future A. C. students.

The School of Science and Literature has been built up to meet the common needs of the specialized schools of the college, and in turn it has become the means through which these schools adapt themselves and their service to those who have aims other than those provided for in the special curricula. Science and Literature is the college saying to the community: if you don't see the rurriculum that you want, ask for it. You have made the college. Use it.

Campus News

Sixty-one College Students

receive their degrees at commencement exercises, June 12. Master of science, Lee M. Roderick, Fargo.

Bachelor of science: School of Agriculture, Elmer Darling, Dunseith; Richard Falkenstein, Bottineau; Earl J. Heising, Conway; S. Lynn Huey, Wyndmere; Fred Mares, Wheatland.

School of Chemistry: Clarence Dragert, Fargo; Harry E Hoffman, Fargo; E. Vernon Ladd, Fargo; Leonard R. Sivertson, Fargo; William Zimmerman, Casselton.

School of Education: Lester W. Bullard, Casselton; Florence Isensee, Fargo; Bernice G. Noyes, Cando; Alice B. Peterson, Fargo; Martin H. Ostrem, Fosston, Minn. Two-year Course: Mabel Bateson, Rolla; Joseph Runsvold, Fargo; Dolores Smith, Fargo.

School of Home Economics: Ellen S. Aageson, Leeds; Harriet F. Ashland, Fargo; Carrie Hovland Flaxton; Mildred Jenkins, Oakes; Anne Jorgenson, Towner; Ethel S. McGuigan, Chaffee; Rose M. Rutch, LaMoure; Eleanor Trowbridge, Fargo.

School of Mechanic Arts: Agriculture, Philip Moe, Fargo; architectural engineering, Merritt E. Hoffman, Courtenay; civil engineering, James Ballard, Moorhead, Minn.; Lawrence Bohnhoff, Valley City; mechanical engineering, Victor Johnson, Fargo.

School of Science and Literature: Katherine Blake, Fargo, Edith Challey, Lisbon; Mrs. Ella Gottschalk, Fargo; John Jensen, Stanley; Edith Hook, Dilworth, Minn.; Sigmund Leifson, Fargo; Elizabeth M. Pollock, Fargo; Bertha Rambow, Fort Rice; Matthew Tindall, St. Cloud, Minn.; Goodwin Westlund, Fargo; Alice G. Woldy, Edmore.

School of Pharmacy: pharmaceutical chemist degree, John T. Backes, White Lake; Frances Wenstrom, Carrington. Graduate in pharmacy degree: Emil W. Ahlness, Rhame; Joseph R. Blair, Bowdon; Albert W. Buehler, Oberon; Glenn M. Cook, Fargo; James Cooke, Rochester, Minn.; Perley G. Friedrick, Fargo; Mary T. Kalberer, Fargo; Milo Knutson, LaMoure; Bartholomew E. McGraw, Cogswell; Arthur E. Nelson, Mayville; Myron R. Quammen, Reynolds; Gerald S. Severt, Calio; Albert D. Smestad, Nome; George W. Thamert, LaMoure; John C. Wamberg, Hope; Seth A. Welch, Grafton.

Some 200 high school contestants took part in the annual May Festival, held at the Agricultural College, May 11 to 13. Keen competition marked the inter-high school track meet which was won by Fargo, with Valley City second, and Langdon, third. Literary contests including public speaking events, essay writing, and exhibits of high school papers. An industrial exposition was centered in Ceres Hall. The pageant, "The Gift of the Gods, was presented twice to a packed armory.

With the destruction of the barberry bushes which harbor black rust of wheat in 17 counties of state, plans to extend the eradicated area this summer have been completed by George C. Mayone, in charge of the campaign conducted by the U. S. department of agriculture in the northern wheat states.

Expansion of activities at the college's Model High School, which has included greater participation in athletics this spring, will also include the first football team in the history of the school next fall, according to P. J. Iverson, superintendent.

Thirty-seven disabled veterans are enrolled in vocational training in college courses this spring, of whom 18 are studying agriculture. The rest are distributed in courses in architecture, civil and mechanical engineering, chemical engineering, science and literature, pharmacy, and veterinary science. Forty men who completed work in the farm husbandry course this winter are now on farms, and 35 others were enrolled in special courses at the college.

"Notes from Birdland," by O. A. Stevens, Agricultural College, a series of articles on North Dakota birds, have been appearing weekly in papers of the state during the past two months.

Eighty courses selected from curricula of the regular sessions will be offered during the summer term at the Agricultural College, June 13 to July 21. Teachers who wish to renew or to extend certificates, college and high school students seeking additional college credit, and others interested in "making hay while the sun shines" are predicted to make up the bulk of the enrollment.

Bulletins and circulars published by the college since April include: Station bulletins, 156, The Northern Pig from Birth to Market, J. H. Sheppard; 157, Livestock Judging Contests, J. H. Sheppard; 158, Report Williston Substation, 1914 to 1920, C. H. Ruzicka; 159, Report of Director, 1921, P. F. Trowbridge; 160, Report Dickinson Substation, 1920-1921, LeRoy Moomaw; 161, Report of Edgeley Substation, 1921, O. A. Thompson; 162, Weeds in North Dakota, O. A. Stevens. Extension division circulars: 41, Boys' and Girls' Club Handbook, H. E. Rilling; 46, Making Dress Form, Eulalie Church; 47, Dipping Vats, Dr. Don McMahan; 48, Fight the Sow Thistle, Sidney W. Hooper. Regulatory bulletins: Food Commission Report, special bulletin 6, R. O. Baird; Oil Inspection Report, Culver S. Ladd; Sanitary Inspection Report, special bulletin 5, R. O. Baird.

Nine seniors and 14 faculty members are included in the list of Phi Kappa Phi candidates to be initiated June 12. Election to Phi Kappa Phi, honorary cholarship fraternity, is considered the highest scholastic honor on the campus.

"Merely Mary Ann," four-act comedy, by Israil Zangwill, was presented by the Edwin Booth Dramatic Club in the Little Country Theatre, May 22, under the direction of Miss Marjorie Lieberg.

A. C. HOLDS COMMENCEMENT

June 7 to 12

Model High School Commencement Program

Wewnesday, June 7

8:15 P. M.—Senior Class Exercises— - - The Little Country Theatre

Thursday, June 8

8:15 P. M.—Commencement Exercises--- - - The Little Country Theatre

College Commencement Program

Friday, June 9

8:15 P. M.—Presentation Senior Class Play—The Little Country Theatre

Saturday, June 10

4:30 P. M.—Senior Class Exercises— - - The Little Country Theatre

5:30 P. M.—Alumni Ceremony— - - The Little Country Theatre

6:00 P. M.—Alumni Luncheon and Business Meeting - - Ceres Hall

8:00—10:00 P. M.—President's Reception - - - College Library

9:00—11:30 P. M.—Senior Swing Out and Alumni Ball - College Armory

12:00 Midnight—Pipe of Peace Ceremony - - - College Campus

Sunday, June 11

3:30 P. M.—Baccalaureate Exercises - - - - College Armory

8:15 P. M.—Commencement Concert— - - - - College Campus

Monday, June 12

10:00 A. M.--Commencement Procession.

10:30 A. M.—Graduation Exercises— - - - - College Armory

12:00 M.—Commencement Luncheon.

DID YOU EVER—

Feel the delicious tingle of landing a fat order, of pegging an arrow-like throw to second base, of popping a basketball into the loop from the center of the floor or of seeing it done, of landing a big, struggling trout about so-o-o-o long? Then, and then alone can you sympathize with the feeling of joy that springs up around A. C. when a splendid response follows an appeal to the alumni, or to the student body. But the joy that accompanies the letter spontaneously generated—the newsy, stimulating letter from some industrious and loyal alumnus out in the field,—folks, the thrill can be felt, but not described!

THAT a pleasant depth is knee-deep in June, but he who first gave the word to get the spring fever spirit, to get the shady bench impulse, to feel a wanderlust, and to feel the far away look these late spring days should be either spanked or crowned. June is the month of brides, flowers, delicate colors, beauty, new life, and rejoicing. The future of the new life and continued life is based largely on cooperation, be it the Agricultural College, College and State, or a new college spirit. Beauty and new life attracts attention, cooperation keeps the idea growing until lo! it blooms into the ideal,—into the fruited flower.

With these remarks we will now resume our business of whittling a great big gnarly shillalah properly garnished with 40 penny spikes for the first fellow that offers: "I— i— h—— e——— f— y—?"

COLLEGE STATE

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Success of A. C. Lies in Success of Alumni

By Dr. John Lee Coulter, *President*

AFTER one year with the College I feel better able to "talk shop" with alumni and former students of the Agricultural College than at any time during the past year, now that I have had an opportunity to meet many of you personally and to carry on correspondence with others. I have been tremendously pleased with the enthusiastic cooperation on the part of "old timers." While many of you have not been in position to do any specific thing for the college during the past year, I have not had a word of criticism or complaint from any and large numbers have written or brought personally to me helpful suggestions; while others have taken off their coats and have spent many valuable hours helpful to make the college of today better serve its purposes. My hope is that from month to month larger numbers may find some useful thing to do to help the college "carry on."

> **"MOST people do only the usual things. They do only the usual amount. They do things only usually well. With such education as may be secured here they, like you, will be able to do unusual things and do them unusually well. This development means progress, advancement, and prosperity for the good people of our beloved state."**

An institution such as ours,—because this institution is more truly yours than the ordinary citizen's,—must have a past, present and future. Its past is measured by its accomplishments. Its present can only be a little better or a little worse than its past. And its future can be great or small according to whether it is going up or going down. Its past is great and glorious. From the standpoint of resident instruction, it has helped thousands of boys and girls to become more successful men and women. I hope that it is true that every one of you gained something while here which has helped you more successfully to carry on the world's work. Its last year was probably the greatest of all, because so far as we can see it did not strike any rivers which it could not cross, any mountains which it could not climb, any roads which it could not pass. It gained just a little in size and momentum and in outstanding character. I feel sure that with your help it went forward a little. It did not go back. In the field of extension activities it contributed its bit, while thousands of farmers, their wives and children and other citizens gained little or nothing from the institution last year, other hundreds, yes thousands, did gain some definite, useful help and by applying the help secured did advance a little bit toward bettering their own conditions and bettering the state From the standpoint of the regulatory Station new accomplishments were contributed for the advancement and improvement of the state and its people. From the standopint of the regulatory service the institution for yet another year helped the authorities of the state in the enforcement of laws and contributed much toward the general welfare of the whole population.

And now for the present, what are the prospects? How about the immediate future? The need for service in every line of work from every department, from all the schools and from the several divisions of the institution, and opportunities show greater than ever upon the horizon. But the institution has girded up its loins and is prepared for the greater call upon it. The Extension Division is more determined than ever to render greater help than ever in the past to the people on the farms and in the homes of our state. The Experiment Station is bending every effort and straining every nerve to bring forth further and greater useful results to be carried to the people of the state. The resident instruction division,—or the schools which go to make up the college,—is prepared better than ever before to take care of a still larger number of boys and girls and give them still better instruction than anything which it was able to give to you when you were here. And so throughout the institution at present and the immediate future the sentiment is one of hopefulness and confidence that your institution will not be found lacking.

You ask—what can I do to further the work, to increase the services rendered by my Alma Mater? My reply is—you can do much. At every turn conversation lags. Tell the fathers and mothers around you, tell the boys and girls whom you meet, tell the farmers and business men with whom you associate about the college and its work. Show them in what ways the college serves them and in what ways it can serve them more. Show the young folks the opportunities staring them in the face. There never was such need for people to be educated to do their task better. Most people do only the usual things. They do only the usual amount. They do things only usually well. With such education as may be secured here they, like you, will be able to do an unusual amount of unusual things and do them unusually well. This means progress, advancement, prosperity for the good people of our beloved state. The natural resources are here and a much more prosperous civilization is at hand if only we were trained or educated to utilize. You should familiarize yourself with all the courses now offered, the college courses, the vocational high school courses, the industrial courses, the short courses, the work in agriculture, home economics, all lines of engineering and architecture, all lines of chemistry and pharmacy, the great field of general science and literature and education. If you will, you can make it possible for your institution to double its services within the next four or five years.

And then there is the average citizen. the great body of progressive people of this state, the tax payers, who support your college. They are willing, in fact they are glad to contribute each a few cents in order to see this thing done and done well if only they knew more about the type of work, the amount of work and the purposes which prompt us day by day. When conversation lags turn to this as a useful subject of conversation. Your local press frequently seeks for "copy" which will be of interest to its readers. Stop in from day to day and give them a little story about your Alma Mater.

In turn, is there anything further which we can do for you? The college looks out to you as its greatest achievement. Your success is its success. When you suffer, when you slip backward, when you have difficulties, your Alma Mater grieves with you and wants to help you. Surely with the multitude of departments and many types of work, when you have a question which does not yield to answer, if you send it in some one here can give you helpful assistance.

"The State is our Campus." You are still part of us. Service is our motto. United we stand; divided we fall. We wish you well. It is a great pleasure on my part at this time to send you greetings.

Alumni Hold Annual Meeting, June 10

Report of Secretary, N. D. A. C. Alumni Association

By THEODORE E. STOA

OFFICERS of the Alumni Association were re-elected for the coming year at the business meeting of the association held June 10. B. F. Meinecke, member of the executive committee whose term expired this year was re-elected for a period of four years.

There followed a discussion and general acceptance of the committee's report on a plan to enlarge the association by making eligible for membership students who are not four-year graduates, but who have been resident students at the college for one year. A committee was chosen to draft an amendment to the constitution to this effect, the executive committee being given power to accept or reject the amendment in the name of the association.

Efforts to enlist the support of the student body to a plan to transfer Gay-cat Day and its activities to Home Coming Day in the fall were discussed at the meeting. The consensus of opinion was that such cooperation would make Home Coming Day a more inclusive event and Gay-cat Day a day of greater import at the college. Steps were taken to encourage suggestions for the new arrangement.

The alumni members expressed themselves in favor of the suggested change in the name of the institution.

A. C. Alumni Association To Include Non-Graduates

By L. R. WALDRON '99

A change in the constitution of the N. D. A. C. Alumni Association has been made which will bring about an increased membership by making non-graduates of one year's attendance at A. C. eligible for membership. This, in turn, will work toward a greater enrollment at the Agricultural College. The writer, as chairman of the committee, has been working with Dr. Frank Darrow, Rex Willard, Agnes Halland Oftedal, and Marjorie Lieberg, to bring about the change.

In a complex organization like an educational institution there are a number of factors making for success. In a democratic institution like the A. C. with such a large number of possible prospective students a larger enrollment is one of the things much to be desired.

Much can be done in this way by the former students, both graduate and non-graduate. In fact, if all former students took this matter in hand, acting either individually or better, in small groups acting as units, the enrollment of the N. D. A. C. would soon show results gratifying to all concerned.

Considerable effort in the past has been put forth by those once attending A. C., but such efforts have lacked the good influence of a strong central organization. In 1921-1922, under the leadership of C. A. Williams, real progress was made toward organization and certain clear-cut, concrete ideas were put into action. An outstanding example of this, among others, was securing former student representation upon the Athletic Board of Control. Dr. Albert Hallenberg now represents alumni upon this important board.

Alumni Association Widened

The committee announces at this time that the N. D. A. C. Alumni Association, which heretofore enrolled only graduates among its members, has so modified its constitution that non-graduates of one year's attendance at the A. C. may now become members of the association upon payment of the regular dues of one dollar. Under the new plan, it will be possible to organize local alumni units over the state whose chief work will be to enlarge the activities of the A. C. by increasing the student attendance.

The amendments as adopted read as follows:

MEMBERSHIP

Section 1: Membership in this Association shall be constituted as follows: (1)

Graduate members; (2) Non-graduate members; (3) Honorary members.

Section 2: A graduate member shall be a person who has received a degree from N. D. A. C., and has paid his dues for the current year.

Section 3: A non-graduate member shall be a person who has not received a degree from the N. D. A. C., but who has completed the prescribed work for at least one year in any division or school of the college, who is no longer a student, and who has paid dues for the current year.

Section 4: Any member or ex-member of the faculty of the N. D. A. C. may become a member of the Association upon a non-graduate basis.

Section 5: Persons of distinction in the affairs of the N. D. A. C., and others whom the Association may wish to honor, shall be eligible, when recommended by the executive committee, for honorary membership. Such persons are to be elected to honorary membership by a two-thirds vote of the members present at any meeting. Dues will not be required of honorary members.

Welcome, Bison Boosters!

Hail to you Bison Boosters. We are glad to welcome you progressive Fargo businessmen. Your interest and splendid co-operation are highly appreciated, and the college will be the better for your kindly interest and loyal support.

N. D. A. C. ALUMNI ASSOCIATION
T. E. Stoa, secretary.

Response

Fargo business men fully appreciate the possibilities of the North Dakota Agricultural College, and stand ready to assist in any way the movement to effect a bigger and a better A. C.

BISON BOOSTERS,
Dr. Albert Hallenberg, president.

What's New Brother?

Because news of alumni and former students cannot be cultivated and grown like apples or weeds, the success of College and State as a newsy directory of alumni activities depends upon the many little personal items and letters that former students and others contribute that are received at this end with such unadulterated joy and relish. Modesty sometimes prevents you from recording your own activities, but think of the record you can make of the activities of others! If 100 of us contribute one rare bit of news, we can read the news that 99 have furnished. Grab a pencil, typewriter, or hay-wire pen now, while the inspiration sizzles, and mail us some news of others, and a few inklings concerning your own longings, inspirations, joys, opinions, and musings.

Read and Rejoice

Reports from the alumni association, which made splendid progress and did helpful service to alma mater last year, indicate that its officers intend that it shall progress. The association merits strong backing. Like other groups it promotes the welfare of A. C., encourages interest in the college and between its former students, furnishes another bit of organized effort so essential to real progress, and fosters the spirit of optimism and loyalty that is already bearing fruit this fall. More power to organized alumni and former students! They need and deserve conscientious support.

The Best for A. C.

''The best for A. C.'' is a goal in which we are all interested. High standards at A. C. can be maintained by insuring that the best come to A. C., and that they be interested in keeping up high standards at college. Former students can aid by encouraging ''the best'' to come to the college, a practice that will help in the general program to make the college better, and better known. ''The best is none too good for A. C.''

What Is Your Address?

Autumn brings many changes of addresses and removals among the alumni which demand corrections on the mailing list of College and State. If your copies are being forwarded to you, or if you have failed to receive recent issues, notify College and State of your change of address. If you know an alumnus who is not receiving a copy, send in his name and address. You may, incidentally, be contributing a news note for our columns. Who knows?

Bison Camp Reflects Winning Spirit

By M. R. Latimer, '23

WE'RE off for the biggest football year we've had since the old days say students, alumni, townspeople, and members of the football team, after surveying prospects for a championship team in embryo, when Athletic Director Borleske issued his call for men to report at the two weeks' training camp at the Detroit lakes on September 11. Sixteen men reported the first day, with one or two odd ones straying in every day and prospects of at least 30 before the camp ended on September 24, were fulfilled.

With the closing of Fargo College, the A. C. had little competition in grabbing all the promising high school men from Fargo and Moorhead. The biggest scoop of all was the enrollment of six of Fargo high's state championship team of last year. All of these men were picked for berths on all-state teams last year and include: Caraway and Rudd, for the backfield, both all-state men; Grant, guard; Thompson, center; Arnold at end; and Marks, tackle. All of these Fargo High men are big enough to handle berths on the varsity.

Promising Material Reports

Other big scoops in the line of players included "Buck" Robbins of Wahpeton, a 190 pound hard fighting tackle. Buck had considerable experience in the army and was the mainstay of the Wahpeton Science line for several years. He is also a good basketball asset, having made the all-state college team while playing at Wahpeton Science and having won the honor of being the only Wahpeton man ever selected for this position.

"Kayto" Loss, a former all-city Minneapolis high school man, has solved the problem for one of the ends this year. He can grab the ball high and is going to be a wizard in spilling the interference. Roberts, the famous "pug" from the Bismark territory, is returning to school again this fall and is going to bid for the other end position.

In the backfield, Flow, a 180-pounder who runs the 100 in 11 seconds and former star on the Great Lakes team, is going to take up his collegiate work at the A. C. Griffiths of Valley City will be here and Wertman of Aberdeen who was quarterback for the Aberdeen Normal last year will contribute his 190 pounds of beef toward winning victories for the Bisons this year. In addition there will be Bohnsack, Boise, Gunderson, Burnette, Captain Duerner, and possibly Dunham as the lettermen to hold positions in the backfield.

For the line we will have Meecham, Latimer, Hull, Ebling, and Buchanan, back among the letter men. Other men who have reported are Gordor and Wall from Bottineau, Larin from Wahpeton, Rathje of the A. C. preps from last year.

This year A. C. will have another splendid assistant coach in Joe Cutting of Williston, who has turned out more championship high school teams in North Dakota than any other coach. He has played under some great masters of the game, with Minnesota under "Doc" Williams, later at the A. C. under Dobie, and then at Washington under Dobie, who is now coach at Cornell. Borleske will be at the head again this year and with his splendid knowledge of football strategy will give the team plenty of plays and head work.

Home Coming Day Stressed

The team will make its first bow in new-colored uniforms this year, with the color of the sox and jersey changed from green to yellow. This change is made because of the greater ease in picking out a lighter and noticeable color in forward passing. Plenty of equipment has been purchased so that the team will look snappy when they hit the field.

Everybody wants everyone to remember Homecoming Day on November 4, this year. The Bisons play the University so there need be no further inducement. The Bison Boosters' club will take part in the program this year and everyone is being assured a good time and a happy one following the game.

There have been a great many changes in the athletic department this year. A full time assistant coach has been made possible, a course in coaching and physical training work has been installed, new bleachers which will accommodate an extra 500 persons have been built and the city of Fargo and A. C. alumni are backing the department as they never have before. Members of the team say they are going to show their appreciation by winning for A. C. the first championship of the new North Central Intercollegiate Conference. This conference includes the University of South Dakota, University of North Dakota, South Dakota State, N. D. A. C., Creighton College of Omaha, Neb., Morningside College at Sioux City, Iowa, the University of Des Moines at Des Moines, Iowa, St. Thomas, and Nebraska Wesleyan.

The Bison schedule as it now stands is as follows:

Oct. 7—Grafton Post American Legion, Dacotah Field.

Oct. 14—Jamestown College, Dacotah Field.

Oct. 21—Montana State, Dacotah Field.

Oct. 28—Concordia, Dacotah Field.

Nov. 4—UNIVERSITY OF N. D., HOMECOMING DAY, Dacotah Field.

Nov. 11—South Dakota State, Brookings, S. D.

Nov. 18—Superior Normal, Superior, Wis.

Nov. 30—Morningside College, Sioux City, Iowa.

A. C.'s First Football Team --- 1893

From left to right, top row, they are: Adams, Addison Leach, assistant coach, Charles Hayden, Elwin, Dosdel, Gibson, O. A. Thompson, now superintendent of the Edgeley Experiment sub-station, H. L. Bolley, coach and manager, C. M. Hall, deceased.

Second row: Carl Lee, now superintendent at the Gridley Dairy Co., Milwaukee, Wisconsin; Claude Nugent, associate manager, Minneapolis branch, Western Adjustment Company; Nyheart, deceased; Ralph Ward, farmer, Garrison, N. D.; Loomis, Gary.

Bottom row: Van Kleeck, Van Kleeck Supply Company, Fargo; Saunders; Robert Reed, Amenia and Sharon Land Co., Amenia, N. D.; L. P. Bottenfield, Birmingham, Alabama.

Football at A. C. Thirty Years Ago

By K. W. Green, '23

FOOTBALL at the North Dakota Agricultural College was born in the fall of 1893, following a challenge by the University of North Dakota. President H. E. Stockbridge received the letter of challenge in his office in the new administration building, and handed it to Professor H. L. Bolley, then a recent graduate of Purdue University.

"Upon reading that letter Professor Bolley immediately began to create a spirit for a football team," says E. S. Keene, dean of the School of Engineering. "Professor Bolley was our first coach. He taught the Purdue University gravel pit type of football. At that time, the University of Illinois had an uncoached team, while Purdue had a coached team and were trying to play football like they did in the East. The Illinois men went over to Purdue and were beaten 60 to 0. When they came back they said the Purdue team had taken them out in a gravel pit and half killed them. So Professor Bolley, being fresh from Purdue, proceeded to teach the gravel pit type of football.

"In answer to the challenge of the University of North Dakota our team went to Grand Forks in October. I met Professor Shepperd that afternoon in front of Francis hall, the new boys' dormitory, and he announced the news that our team had beaten the University team.

Early Victors Feasted

"We planned a reception for the boys It consisted of oyster stew, bread and butter and coffee and a good time. There were only a few of us in those days and that was one of the good times. We were all young then, I was only two years out of school myself.

"Robert Reed, who still lives here in Fargo, was one of the men on that first team. He was in the first class at the N. D. A. C. Ralph Ward, who is now a prosperous ranchman near Bismarck, and Claude Nugent, and Charles Hall, whose picture hangs on the west wall of our library were other players.

"The following year we played two games, both with the University. The first game played up there we lost 30 to 0, and the second was played here. The athletic field was where the barracks is now. The day was raw and cold and a thin coating of snow was on the field. That game ended 2 to 0 in our favor, so the University was disappointed."

On October 10, 1896, on a muddy field and in raw weather, N. D. A. C.'s gallant 11 played St. Cloud Normal School with a score of four to four. So it is recorded in the earliest pages of the Spectrum, then a monthly publication.

Our lineup when A. C. bucked up against Crookston on October 31, 1896, was as follows: Henry, Brand, Milner, Ryan, Worst, Lee, Schollander, Hall, Tucker, Miller, Lamont.

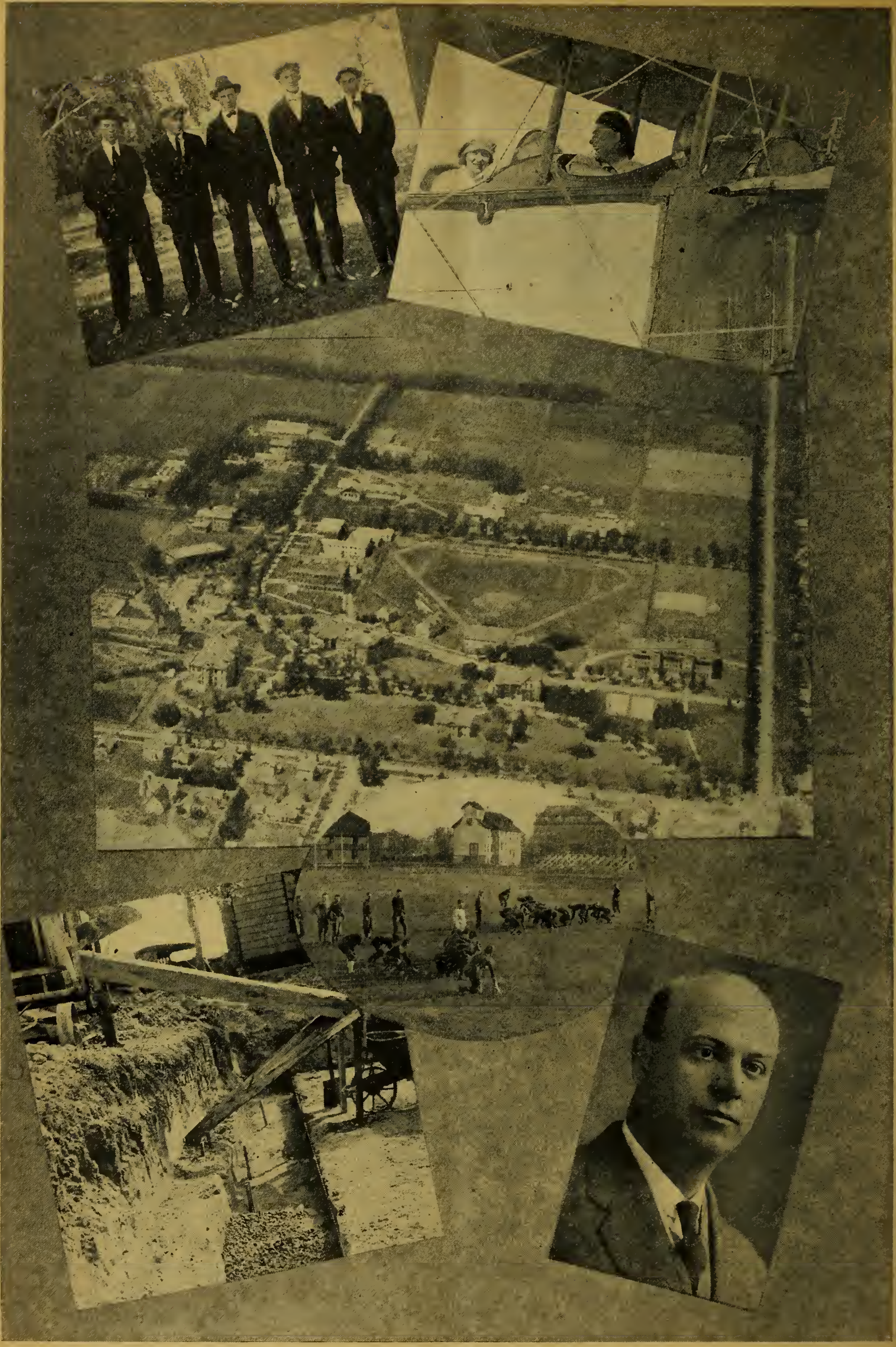
A. C. met their traditional enemy, the University of North Dakota, October 28th of that year. A bill to prohibit the playing of football was introduced into our state legislature early in the year of 1897, says the Spectrum.

An article urging the erection of a gymnasium and the employing of a trained physical director by the college by Purl Bottenfield, was published in the Spectrum of April, 1897. During May of the same year there appeared an article by Frank J. Newman, also, urging athletics. Mention is made of an athletic association then in existence.

Women Hold Field Day

Field day was held May 15, 1897. F. J. Newman won the $10.00 gold medal as the best all around athlete. This prize had been won by Clayton Worst the previous year. The college women were already athletic in those days. Miss Lizzie Olson won the 50 yard dash in the ladies' contest. Miss Marie Edwards won the quarter mile bicycle contest. Miss Damia Peck threw a base ball 113 feet, 5 inches.

Following the field day meet at the college an inter-collegiate meet was held under the supervision of the North Dakota



Miss Lillian Hovland, following her first flight. Verne Roberts, Fargo aviator, pilot.
Student stock judges represent college at Dairy Congress, Iowa, and National Dairy Show, St. Paul.
The College from the air.
Bisons training for Legion game.
Prominent alumni include A. W. Fowler, Fargo attorney and banker.
Foundation and site of the corner stone of the new home economics practice cottage.

inter-collegiate Association. Professor McArdle was referee at this meeting.

Mr. J. Tilny, ex-Harvard half-back, became coach in the fall of 1897; the schedule for that year included games with the University of North Dakota, and other teams from Duluth, St. Cloud Normal, St. Cloud high school, and St. Paul.

Basketball Begins

Traces of basket-ball during the winter of 1897 are recorded. A baseball team was organized in the spring of 1897, but due to the activities of Company B in June, enthusiasm for athletics was at low ebb.

In the fall of 1898, Henry and Brand, two of the mainstays of our football team were playing baseball in the Philippines, but games were played with West Superior and St. Paul. Professor Bolley was coach and W. P. Farnham was manager. In December, both men and women were busy with basket ball. In January, 1899, came the Spectrum's habitual plea for athletics. Basket ball games were played with Fargo College and the Y. M. C. A. C. K. Stark was manager of the basket ball team.

Dr. Grasse, from the Rush Medical College, was appointed coach of the foot ball team and the smouldering athletic spirit picked up once more. After the football season, the Spectrum, in commenting upon the outcome of the season, says that athletic spirit was growing and that had President McKinley's visit not drawn such a crowd to Fargo, the season's football enterprise would have been a financial loss.

December found the college women playing basket ball. A basket ball league was formed that winter consisting of Fargo College, the Y. M. C. A., and the N. D. A. C. A kickers' contest for the Bolley medal was the center of attraction in January. The "All Stars," as they were called, a young women's basket ball team of the college, created a local sensation by winning over the seniors and professors in January, 1900.

Baseball Team Organized

In March, 1900, Professor Bolley was elected general athletic manager. In April a base ball league was formed consisting of N. D. A. C., Moorhead Normal, Fargo College, and Concordia. The base ball season ended with 13 victories for A. C., out of 22 games.

The enthusiasm, which during December the Spectrum had described as small but growing, had developed into full grown pep by the end of the school year in June and foot ball games had already been scheduled with the "U," Fergus Falls, Hamlin, Carleton, Macalester, and the University of Minnesota.

Early Rules Differed

"There was no forward pass in the early days and bucking the line was the main feature," says Robert Reed of Fargo, quarter back and captain of the first A. C. football team, in commenting on some of the differences between the way the game was played then and the way it is played now.

"Very little kicking was done. The ball was usually forced through the lines and there was some running around the ends. The game was less complicated and there were fewer penalties. Professor Bolley developed a criss-cross play which worked very well and served to confuse the other team.

"We were short of men when we went to Grand Forks in answer to that first challenge, but when we got there we found the University in the same condition. They put in their military instructor to fill out the team and we were glad they did for we were then allowed to put in Dr. Heinbaugh of our veterinary department, who had had some experience at the game in an eastern college, Purdue, I think. He was good at the art of falling down or stumbling and he always had one or two opponents under him when he fell.

"When the University team came down here that fall they were nicely equipped with stocking caps and our boys were bare headed, but our team had the stocking caps when the game was over. They did not forgive us for a long time.

"The spirit of both cities was in the games between the A. C. and the 'U' and it was as much a Grand Forks and Fargo affair as it was a college affair."

How Dairying Came to North Dakota

By E. D. Ross

Professor of History, N. D. A. C.

DAIRYING in North Dakota, judged by official statistics, the extension of organized activities, and the general public interest, has decidedly ‘‘arrived.’’ While still not fully established as a major interest, it is evident that the pioneer period of experimentation, education and agitation has been passed and that the basic problems of the industry have been solved. Soon the agricultural maps must be reshaded to indicate the dairy herd's peaceful penetration of the valley of the ‘‘American Nile,’’ hitherto dedicated to hard spring wheat, and the emergence upon the western slope of a new sort of ‘‘cow country.’’

BESIDES the romantic background of Indian lore and frontier life, North Dakota's history has other interesting historical sidelights, a few of which will be recorded in a series of short articles of which this story is the first.

It is especially fitting that a summary of this occupational evolution and at some time a more complete and vivid story — should be recorded in **College and State**, as the Agricultural College has from the start had a leading part in directing and inspiring this, as all other developments in diversified agriculture.

For the student of agricultural history such a study naturally suggests a comparison with the older communities, to determine whether their experiences have been repeated on the newer frontier and whether profit has been taken from their failures and achievements. In the movement of the farmers' frontier across the continent, in spite of all the profound differences in physical areas, the general course of development has been strikingly similar: staple production has been held to until inexorable physical and social conditions have forced a reluctant diversification.

Such is the well known story of the ‘‘westward march of wheat’’ from the Virginia and Pennsylvania valleys to the Northwest, and of the shifting of bulk food production from the Atlantic states to the Middle West. After following the line of least resistance to the limit, often beyond the economic limit, the older regions were forced to a diversification, determined, within the bounds of potential productivity, by marketing conditions. Rural New England, by one of those ironies of economic determinism that have dogged her slow footsteps, lost her food market to western competitors almost as soon as one emerged in the industrial centres, and dairying was turned to as a dependable and enduring activity. The Middle Atlantic states, especially in regions not well adapted to fruit growing and market gardening, eventually turned to the same source of income. Abandoning the field of the great staples, the East came to take a self-conscious pride in its peculiar line of production: the fiction of the superior quality of eastern grasses and climate arose and the fame of Vermont and Orange County butter was heralded throughout the land.

Change to Dairying Inevitable

In a later period the region of the upper Mississippi awoke to the realization that not even the prairie plains could withstand the pressure of soil exhaustion combined with the competition of the new wheat lands which the extension of railroads precipitated. The transition to stock raising and dairying while postponed to some extent by the high wheat prices of the Civil War, was inevitable. Eastern industrial expansion was now multiplying urban districts to such an extent that the market milk business was beginning to supersede factory production; and the opportunity was thus offered for the north central states to take the lead in the manufacture of butter and cheese. Organization and standardization gradually overcame the prejudice against "wild flavored western butter" and cheeses not bearing the New York brand, and a great transformation of one of the most important agricultural sections was successfully made.

In North Dakota, until after the first decade of the new century, both economic and psychological influences were opposed to the general extension of dairying. With the banner small grain region in the eastern section, the great meat raising activities of the western and the combination of the two in between, the greatest return seemed to be in these staples. Then too, for a land of big things, of bonanza wheat farms and great cattle ranches, the laborious, meticulous cares of the dairy seemed trifling and pottering.

Here and there, to be sure, were to be found men of vision who, judging by the experience of older regions and their knowledge of crop conditions, foresaw the desirability of a partial diversification through the medium of the dairy cow. In February, 1891 a state dairymen's association was formed at Fargo,. with twenty-two charter members, and the first convention was held at Grand Forks the following June. As early as 1892 the station chemist of the Agricultural College sounded a warning as to the need of dairying in a proper system of crop rotation for the state. Soon after the founding of the College the citizens and corporations of Fargo raised funds for the erection of a manufacturing creamery on the campus for industrial purposes. In 1896 in a study of dairy instruction throughout the country by an investigator of the federal department of animal husbandry a picture of this plant was reproduced as a model for that type of instruction, and the same year another federal agent reported that the facilities for dairy instruction in the Dakotas were superior to those of Nebraska.

Early Results Slow

But these pioneer efforts were slow in securing definite results. The state association after the initial convention failed to meet again until 1896 and following that gathering it became inactive until 1910. The reasons given for the suspension were the general indifference of the average farmer and the lack of sufficient funds, with the refusal of the legislature to grant the small subsidy sought. Apparently too, some of the elect themselves had not the full courage of their convictions, as the discussions in the early meetings were devoted nearly as much to the problems of fattening and marketing stock as to those of milk and its products. The College's investigations and teaching seem to have borne little fruit with the existing generation. An investigation by a federal agent in 1896 indicated that the industry was in its infancy —and the infant was not thriving. The milk production was low, the manufacture of butter and cheese was still largely a household industry, and the quality of the product was often inferior. A distressingly large part of the butter output found its way, through the medium of the country dealer, to the ladle factory. Knowledge of dairy methods was generally lacking and the short term tenancy system in some sections added to the inefficiency.

Two years later the commissioner of agriculture reported a general feeling of indifference on the part of farmers and legislators toward an activity which had been the "savior of many communities that would have otherwise been depopulated and given over to the original inhabitants." Of 54 creameries circularized but 23 had responded and of these all but 10 had suspended operations. "It goes to show that the industry is rather on the decline than otherwise, and that unless it is given some encouragement in its infancy by legislation in the enactment of more stringent laws governing the adulteration of dairy products, and by such appropriations as will aid in the holding of dairy conventions whereat subjects bearing directly upon the dairy industry can be discussed, this industry of the greatest moment to the state must lapse into a condition of nonentity." So late as 1907 a leading authority in describing the agriculture of the state for Bailey's Cyclopedia indicated but two counties in the state, Sargent and Ransom, devoted primarily to dairy farming.

Crop Failures Change Attitude

During the first decade of the century there was a gradual extension of dairying, though the growth was somewhat intermittent. Crop failures created at least a temporary enthusiasm for milking, just as every prospect of good returns from wheat tended to check movements for diversification. At times it was necessary for the assistant dairy commissioner to issue warnings against the creamery promoter, only in the succeeding year to report the closing down of many of the new ventures. But in these years the possibilities and limitations of the industry for the state were coming to be more clearly understood.

Repeated failures demonstrated before the end of the decade that the conditions in the state were not favorable to cheese making. A local market for the product might have been built up if there had not been insuperable difficulties in production.

But with butter making the case was far different; the natural advantages and marketing opportunities far outweighed the difficulties. Soil and climate were highly favorable, and a good market, often better than New York and Chicago, was available in the mining states to the west. The one great drawback, as the dairy professor at the college pointed out in 1904, was the higher cost of production, owing to the sparseness of population. This social factor worked against the success of the co-operative and other locally-organized creameries which had had such a remarkable development in the more closely settled states of the Northwest and made the centralizer system of cream collection, with all of its limitations and abuses, the most satisfactory for the time being.

The crop failures of 1910-11 seem really to have marked the turning point in the permanent establishment of dairying in North Dakota. "A wave of dairy popularity has been swelling rapidly since the unfavorable crop conditions of 1910 and 1911," reported the dairy commissioner in 1914. Unlike previous "hard time" reactions, this enthusiasm manifested itself in definite, permanent achievements. In 1909 a new dairy law had been passed creating a full commissioner, in place of an assistant provided for in 1899, with more adequate means and powers. The moribund dairymen's association was permanently revived in 1910. State bankers now began their policy of making more favorable loans for the purchase of dairy cows. A "better farming association" formed by business men gave special attention to the encouragement of dairying.

College Leads Movement

The College in its work of resident instruction, research and extension, supported and led the movement at every point. In 1913 appropriation was made for a new dairy building and barns. Production was increased by the formation of cow testing and breeding associations. The inauguration of the New Salem breeding circuit in 1909, in a community that had for years been a leading centre of butter production, marked an epoch in the economic history of the state. Quality of the product was improved by butter contests and the interest aroused in state exhibits at the national shows. Extension workers, and in some cases special demonstration trains brought the facts directly to the farmers.

The material progress attending all of these efforts may be measured in many ways. In 1908 there were very few pure bred dairy herds in the state; four years later every important dairy breed was represented.

Though a silo had been constructed in the state as early as 1896, there were but 20 in the fall of 1909; the next three years saw a five fold increase and by the summer of 1914 there were no less than 700. This development had been aided materially by the detailing to the state of federal silo construction experts. During the decade the state went from 27th to 19th place in dairy rank and in 1919 it stood third in the percentage of gain in dairy cows. While war wheat prices caused a temporary wane in dairy enthusiasm, the general outcome of the high price period showed that the industry could live in prosperous as well as in depressed times. Of the place that dairying has had in the deflated reconstruction period, of the increasing private activity and the extension of public aid, federal and state, a historical survey cannot treat, as these are matters of the most vital and pressing present-day concern.

Dairying Maintains Fertility

While North Dakota has followed the course of the older states in turning to the dairy cow when confronted with the risks of the one crop system, she has not, thus far, aimed to substitute dairying or stock raising for small grain growing but has rather sought to utilize these activities for a supplemental income and as a part of a rotation system. Economists have told us that natural grain-growing regions remote from urban centres should not resort to dairying but rather rely upon systems of crop rotation to maintain fertility. While, given a perfect system of rotation, such might be the ideal, under existing conditions of production and marketing the keeping of the dairy herd would seem to be the surer, more practicable method.

As a comparatively new state, North Dakota has been able to profit by the experience of the older regions and by the general progress made at large in the industry. In various communities over the state the impetus to dairying can be traced to settlers from such leading dairy states as New York, Wisconsin, Illinois, and Iowa; and, in the words of Dr. Wiest, the historian and economsit of the butter industry, with the Scandinavian peoples—"the art of making butter and cheese is a heritage that has been handed down to them by their ancestors." State dairymen's associations had been in existence since 1869 and had solved many of the basic problems of production and marketing; cow testing and breeding associations had been introduced into this country from Denmark in 1905; and the revolutionary mechanical inventions in the industry had been made available.

As in all aspects of agricultural progress since the Civil War, a foremost influence in the diversifiaction movement, in this as in the other states, has been the land grant college.

Finally the course of the industry in the state well illustrates the changed attitude of government, state and national, toward economic enterprises; the change from the laissez faire policy of leaving all such concerns strictly to individual initiative to one of rendering aid and encouragement wherever, in the unmistakable judgment of public opinion, it seems essential for the general welfare.

Extension Work Began With Farmers' Institutes

By J. H. SHEPPERD

Animal Husbandman, N. D. A. C.

NORTH Dakota began her extension work in the interest of her farm settlers in March, 1894, and the first venture was in the nature of farmers' institutes. It was a primitive attempt but a very genuine effort and was well received. The members of the teaching staff of the Agricultural College would assign written work on Thursday for Friday's lesson and go out to hold Farmers' Institutes returning home Saturday night or Sunday to be ready for Monday's classes. The communities visited paid the hotel bills and the railroads furnished the transportation.

I shall never forget one of these trips, farmers' institute trips. It was relay work along the Langdon branch of the Great Northern Railway; time the dead of winter; force, five men. The five of us put on a meeting the first day in Larimore. We held two day meetings and at the end of the first day President J. H. Worst, Professor C. B. Waldron and Professor Kaufmann took the train for Park River where they put on a day's work. Professor E. F. Ladd and the writer kept the farmers discussing their problems during the second day and then went on to Park River. There our first day trio were on the depot platform ready to step in the train as we stepped off. They gave us a few hurried words while the train halted—such as ''Fine crowd here. We talked dairying, trees and garden and treatment of smut. Haney is head man here,'' and as the train rolled them out of hearing one of them shouted ''good hotel.''

We proceeded to the hall and found that the audience was prepared for the shift and had not stirred. We had a good meeting. Since there were only two of us outside men (speakers) we made a strong effort to get the farmer folk to discuss and they took hold well. The next day we repeated the operation at Milton, getting in three or four sentences with our ''advance troupe'' as they took the train and the third shift (the fourth day out) we proceeded to Langdon.

Lecturers Were Not ''Tenderfeet''

From there our three associates had to proceed to Walhalla, a distance of 35 miles by wagon road and they traveled by bob sled conveyance. There was another 35 connected with that ride too, it was 35 degrees below zero. I really pitied those men when I saw them get in and bundle up for that long cold drive, but with ''stiff upper lips'' and well wrapped we bade them Good speed, they bade us good-bye and we parted.

A little later Honorable H. U. Thomas, State Commissioner of Agriculture and Labor looked with favor on this work and used to go out with us and help personally on the platform and he also helped by paying our travel expense accounts out of the state funds of his department. That was a great help as it enabled us to go where we were needed instead of confining our work to places where they volunteered to pay the expense of holding the meeting.

The first Farmers' Institute ever held in North Dakota was at Casselton, March 22 and 23, 1894. It was held under the auspices of the Agricultural College and was attended largely by the farmers in the vicinity of Casselton.

Farmers' Institute Popular

During the following four years some 12 or 15 institutes were held at various points in the state. No money was available at this time for paying the expenses involved in holding the meetings, so the locality in which the institutes were held raised the money by popular subscription to defray the expenses of the speakers. Finally the sixth general assembly, believing it advisable to give the dairy interests of the state some encouragement appropriated $1,000 to pay the expenses of an assistant dairy commissioner for one year, at the same time appointing the assistant commissioner, Director of Farmers' Institutes. A special effort was made to hold as many institutes as possible with the result that many applications for meetings had to be refused on account of a lack of funds to pay expenses.

From November 24, 1899, to March 30, 1900, some 20 institutes were held throughout the state with a total attendance of about 4,000. The addresses of the speakers were first published in pamphlet form, so that many farmers who could not attend the sessions could receive some benefit from the meetings. These pamphlets were published each year until a few years ago.

In 1901 about 25 institutes were held in 20 counties of the state with a total attendance of 9,967. By 1911 these figures had increased to 82 regular and 17 special meetings, and an attendance of 55,172.

In 1908, Professor Kaufman having left the state, T. A. Hoverstad was made superintendent. The work was developing beyond its former bounds and a second speaking force was sent out. In 1914 an Extension Department was added to the Agricultural College which superseded and overshadows all previous and preliminary work for the man in the field. During the third quarter of the year 1922 the Extension Department had a force of 100 workers, 37 of whom are county agricultural agents located and resident in individual counties.

As an example of how early settlements were made there is the example of one farmer who I encountered. He had been engaged in locating and appraising land for years, who like other homesteaders was attracted by the high native grass, some natural timber shelter for live stock and by good water facilities and had passed by land now worth four times as much which was then available at the same price per acre. This man had done reasonably well on his extensive mixed farm which has always been run heavily on the live stock side but he has made no where near what he might have done had he located better land on the start. There is little question about the element of chance entering into the location of the average settler.

Waiting for Railroads

My memory now takes me to a settlement fifty odd miles south of Bismarck in Emmons County where a homesteader of my acquaintance — Richard Roe — among others settled during the early eighties and took up a claim. "Why didn't you fellows take claims in the eastern part of the state?" I asked. "We had it figured out that a railroad would run up along the east side of the Missouri River and we located there and waited for it. We waited more than thirty years for it and it finally came. During all of the meantime we went fifty miles to the railroad to do our buying and selling and during the winter we had no mail and saw no one except our immediate neighbors for as much as three months at a time. A large percentage of the families staid there for twenty years or more. We had one neighbor, Tommy Sanders, a Missourian, who seemed to always get on better than the rest of us and at the end of about twenty-five years he retired and sought the mild climate of California where he is spending the afternoon of life."

"How did he manage to get on so much better than the rest?" I inquired. "Oh! Tommy always grew corn—I think because he was used to growing it in Missouri—at least, I am sure he did not know why he grew it, and he kept some hogs and some cattle. His rotation of crops was wheat and corn and he always put about half of his land into corn and half into wheat. Of course, he had considerable of a stable manure which he applied to his soil and somehow or other, he always had pretty good crops while the balance of us occasionally had to go to Tommy Sanders for seed grain, and he always had it for sale. We all lived very simply and while we did not make much money in a year our needs were limited.

The scientific expert and the men who have been proven through their years of experience in coming up from the homestead days agree in the conclusion that a diversified system of production on the farms of North Dakota has brought and will bring the most successful and permanent agriculture, which will in turn stimulate the greatest advance the state can hope to attain both in the production of wealth and of happy, prosperous, contented homes.

AMONG OUR A.C. FOLKS

''A college without loyal graduates would be as barren a thing as an idea without accomplishment.''

Matthew Tindall, '22, last year's editor of the Spectrum, student weekly, is on the reportorial staff of the Fargo Forum.

Chemists, graduates of the North Dakota Agricultural College, placed during the past few months include:

Walter McKim, '20, recently instructor at the college, New Jersey Zinc company, Palmerton, Pa.;

Harry E. Hoffman, '22, research chemist, Valentine and Co., New York City;

E. Vernon Ladd, '22, paint and varnish chemist, Glidden Co., Cleveland, Ohio;

Leonard R. Sivertson, '22, chemist, Charles D. Long Paint Co., Louisville, Ky.;

Clarence H. Draggert, '22, Standard Oil Co.

Orville Fuller, '22, is superintendent of schools at Leonard, N. D., this year.

Claude Nugent, former A. C. football star, left Fargo recently to become associate manager of the Minneapolis branch of the Western Adjustment company.

E. M. Keeley, Deer Lodge, Montana, quarter-back on A. C.'s eleven of 1915 and 1916, is a candidate for the Republican nomination for county attorney, Powell county, Montana.

Johnson Roach, '21, who visited in Fargo recently, has returned to Ames, Iowa, to complete his work in veterinary science. ''Hal'' left early to join the pigskin candidates at Iowa State.

Percy Lowe, '21, was badly injured in a dynamite explosion which occurred Sept. 8 at his farm at Brainerd, Minn. He lost a finger and was hurt about the face, and although both of his eyes were badly burned, physicians believe that the sight of one eye will be restored.

A. M. Christianson, '16, is established in a successful seed business at Minot, N. D .

Fern Briscoe, '20, is teaching in the high school at Fosston, Minn., this year.

Leo Nemzek, '09, technical director, paint and varnish division, E. J. du Pont de Nemours company, Philadelphia, Pa., visited Fargo during the first few weeks in December.

James Ballard, '22, Moorhead, is instructor in mathematics, physics and chemistry in the Granite Falls, Minn., public schools this year.

Robert Mares of Wheatland has accepted a position as instructor in mathematics and physics in the high school at Anamoose, N. D.

L. B. Greene, '01, is physician and surgeon at Edgeley, N. D.

M. S. Hagen, '17, is manager of North Dakota's State Hail Insurance Department, Bismarck.

John A. Swenson is farming at Aneta, N. D.

George P. Grout, '08, breeder of Guernsey and Red Polled cattle and former president of the Minnesota State Dairymen's Association, owns the Jean Duluth farms, Nickerson, Minn.

Mrs. A. G. Johnson (Edith Van Kleet) of Fargo registered at A. C. in 1892 as the first woman student at the college.

John Magill, '09, is farming at Verona, N. D.

A. P. Murphy, '09, Niagra, N. D., is engaged in farming and real estate work in Grand Forks county.

Charles Struble, who took post-graduate work at the college last year, is in business at Salt Lake City, Utah.

Elmer Anderson, '20, is pharmacist at the Broadway Pharmacy, Fargo.

W. W. Mendenhall, '17, is now a Y. M. C. A. secretary, Indianapolis, Ind., following some five years with the British army in India and Mesopotamia, and as a Y. M. C. A. worker in India.

H. B. Smith, '02, is farming at Epworth, N. D.

C. I. Gunness, '07, is head of the department of rural engineering, Massachusetts Agricultural College, Amherst, Mass. Mrs. Gunness was formerly Elizabeth Rice, '08.

Esther Woldy, '21, is teaching home economics at Lind, Washington.

Melvin P. Ostby, '14, is county agent at Pine River, Cass county, Minn.

Albert W. Thomas, '09, is an orchardist and cattle breeder at Ashland, Oregon.

Among the agricultural workers that Montana has recruited from the ranks of A. C. alumni are the following men:

Carl Yerrington, '14, is located at Miles City, as county agent of Custer county, Montana, and has the distinction of being the second oldest county agent in point of service in the state.

Dean Mendenhall, '14, has been county agent of Dawson county, Montana, for five years. His headquarters are at Glendive, Mont.

M. A. Thorfinnson, '17, has been county agent at Chinook, Blaine county, Montana, for four years.

A. J. Ogaard, '13, is extension agronomist at Montana State College, Bozeman. Ogaard was formerly county agent of Choteau county, Montana.

George Gustafson, '14, county agent of Jefferson county, Montana, is located at Boulder, Mont.

W. P. Stapleton, '13, is county agent at Malta, Phillips county, Montana.

Murray F. Stebbins, '16, is county agent at Glasgow, Valley county, Montana.

R. B. McKee, '16, former A. C. basketball man, is county agent of Flathead county, Montana, with headquarters at Kalispell.

W. O. Whitcomb, '09, is in charge of the grain inspection laboratory at Montana State College, Bozeman, Mont.

MARRIAGES

Miss Marcia C. Berg, Minneapolis, Minn., to Lynn Huey, '22, at Wyndmere, N. D., Aug. 28. Huey, captain N. D. A. C. football team of 1921, is a member of the high school staff at Cavalier N. D. this year.

Miss Emma Skeem, Fargo, to Hutzel Metzger, '20, at Minot, N. D., August 14. Metzger is with the department of farm management, N. D. A. C.

Miss Gertrude Danekas, Wheaton, Minn., to Carl E. Bublitz, '21, at Valley City. Bublitz, who taught at Drake high school last year, will be director of athletics at Minot State Teachers' college this year.

Miss Helen Miller, Rockford, Ill., to Curtis H. Pollock, '14, LaMoure, N. D. "Hal" Pollock is county agent of LaMoure County, N. D.

Miss Marie Huey, '19, Wyndmere, N. D. to Taylor Strate, Fargo, July 12, at Wyndmere. They are living in Chicago.

Miss Evelyn McDermott, Cooperstown, N. D., to E. Vernon Ladd, '22, Fargo, July 29, at Detroit, Minn.

Miss Alice Struble, Fargo, to Harold Behlmer. Fargo. Behlmer is employed in the city engineer's office at Fargo.

Miss Margaret "Peggy" Chandler, '20, Fargo, to Earl Burns, Fargo, June 10. Mr. Burns is employed with the Aetna Insurance Company. They reside at 1002 Front Street, Fargo.

Miss Esther Woldy, '20, Edmore, N. D., to Elmer Geissert, Downers' Grove, Ill., June 24.

Miss Frances Sim, '21, to George Hanson, '21, on July 20. Hanson is a county agent with headquarters at Gettysburg, S. D.

PSST! Ted Thorfinnson, '21, and Bill Mortenson, '21, met in secret session recently and there resulted forthwith the following minutes and resolutions, for which they are hereby cited and awarded a genuine non-leakable hay-wire pen:

"The field of agriculture is broad, and its students are by no means limited to tilling the upper six inches of terra firma, according to Wallace Patterson, '18, 1518 Texas Ave. Houston, Texas, who writes as follows: 'There is something about the oil business that grips and holds a person like a spell. Business has been booming all summer and we struck another powerful flow last week. Greet my friends for me and remember that my address is Houghton, Texas. John Jeffries is here with me.

"Satisfying the buying public is not always an easy thing to do,' writes Charles Struble, '21, who is manager of a Pigley-Wigley merchandise store at Salt Lake City, Utah. Charlie left last spring for Salt Lake City to learn the business from the beginning. Within three months he was appointed manager and he reports that the business has steadily increased since June, and that his store is now doing a $5 000 a week business. In a letter to Bill Mortenson Charlie encloses a picture, which faintly suggests that he may be losing the equilibrium of which he boasts, unless he ceases to expose himself too frequently to the influence of the Mormon maidens who dwell by the saline sea.

"Spencer Buster, '21, who has been teaching at Maddock, N. D., was recently seen in Fargo. He announced to newspaper men that he was securing special information on potato grading methods in preparation for his new position as federal inspector at Maddock, but due to four such trips which he has made recently, authorities express themselves at a loss to account for his keen interest in grading methods at Fargo.

"From friends of Hutzel Metzger, a recent recruit of the newlyweds, there echoes a plaintive 'farewell to thee,' but lo! from the band of benedicts there resounds a hearty 'welcome.' and so on."

Campus News

Two New Buildings
To Be Ready January 1

Definite assurance that the new four-story agricultural building under construction at the College will be completed by Christmas, and will be ready for occupancy at the opening of the winter term, January 2, was given recently by contractors, following the completion of provisions for pushing the work without interruption, according to Dr. John L. Coulter, president.

The new building, which will house laboratories, class rooms and offices of the School of Agriculture, will be opened in time to provide for the enrollment of the winter short course which opens January 2.

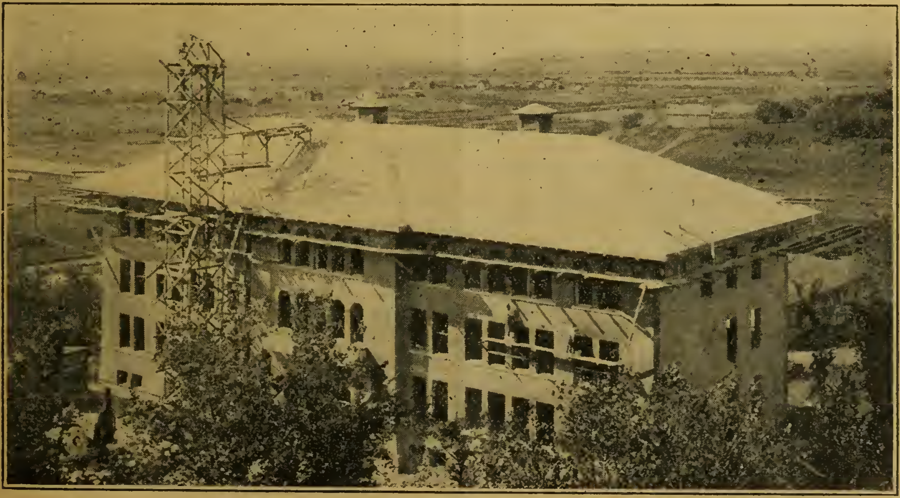
Contracts for the new home economics practice cottage at the North Dakota Agricultural College have been let to O. Ostbye and son, Fargo, and work on the new building has already begun. The new house is to be completed by January 1, 1923.

The new building, which will be located about 100 feet north of Ceres hall, women's dormitory, will be a ten-room brick colonial residence, according to Stanley A. Smith, architect at the college, and Miss Alba Bales, head of the School of Home Economics. Plans call for a family type of house in which home economics students can study the real problems of housekeeping under actual home conditions. Some 100 girls will use the house each year, according to Miss Bales. They will live in the house and manage it in groups.

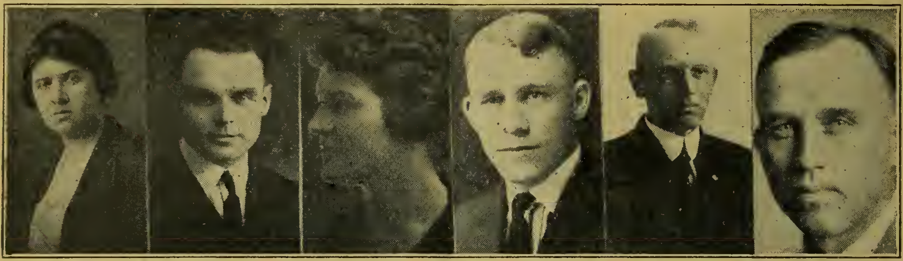
"All types of home-making projects will be worked out by regular students, and by special two-year home-makers course girls," says Miss Bales. Architect plans will be kept on file for study, comparisons in costs between frame and brick houses will be made, furnishings will be selected and studied by home art students, and the good artistic typical home conditions and furnishings of the new house will be surveyed by the girls."

The new practice house is declared by college officials to be the first of its kind to be designed and built especially for the purpose, although many other schools have purchased houses for home economics practice.

New Ag Building Ready by Christmas



Twelve Additions Made to College Staff



Miss C. Findlayson, L. R. Holland, Miss Amy Euren, G. D. Van Dyke, J. E. Chapman, Joe Cutting.

New Appointments Made To College Staff

Recent appointments to the staff of the college include: George D. Van Dyke, University of Iowa, physics; James E. Chapman, University of Minnesota, soils; L. R. Holland, University of Nebraska, dairying; Miss Amy Euren, North Dakota Agricultural College, home economics; H. D. Meyer, De Pue, Illinois, commerce; Mrs. M. D. Rindlaub, fine and applied arts; Miss Florence Schwartz, full time instructor, foreign languages; Oliver P. Fields, University of Minnesota, history, economics, political science; Miss Laura Duerner, Washington State College, mathematics; Miss Christine Findlayson, University of North Dakota, engaged in food conservation work and food demonstrator in North Dakota during the war, home economics department and supervisor of home economics in high schools of the state, under the provisions of the Smith Hughes law.

Dr. A. Benton, recently farm economist at the Manitoba Agricultural College has been appointed professor of agricultural economics and in charge of research in marketing and rural finance for the Extension division and Experiment station. Much of the new research work will deal with the cost of marketing farm products and of financing the marketing movements.

Mrs. Cole Appointed New Dean of Women

Mrs. Myrtle G. Cole, state leader of home demonstration agents will fill the newly created position of dean of women at the college this year.

Mrs. Cole will have charge of student life and interests among women students including social life and entertainments, supervision of Ceres hall, women's dormitory, cooperation with sororities and rooming houses, and social regulations.

The new dean is a graduate of the University of Iowa which she re-entered several years ago to take up the work offered in home economics. During that time she was in charge of a girls' dormitory and other social life among women students. Three of her children, including two daughters are graduates of the University of Iowa and her youngest son is to enter that institution this fall.

Mrs. M. G. Cole, Dr. A. H. Benton, H. G. Meyer, Miss Laura Duerner, O. Field.

Nine New Circulars and Ag Bulletins Issued

Seven new bulletins and two circulars have been placed on the mailing lists of the state Experiment Station and the Extension Division of the Agricultural College since June.

The Bulletins are: 157, Livestock Judging Contests; 158, Report, Williston Substation. 1914-1920; 159, Report of Director, 1920-1921; 160, Report of Dickinson Sub-station, 1920-1921; 161, Report of Edgeley Sub-station, 1920-1921; 162, Weeds in North Dakota; and 162, Report of Demonstration Farms Superintendent, 1920-1921.

The Two new circulars are: 49, the Hot School Lunch; and 50, Handbook for North Dakota Potato Growers.

Some 260 students were enrolled in this year's summer session despite the absence of 75 vocational training students who swelled the enrollment of last year, according to A. H. Parrott, registrar. This year as last year the greater portion of the summer school students are teachers and an important part of the training was carried on under the provisions of the federal Smith-Hughes law. Courses this year numbered more than 80, selected from courses given during the regular sessions and given as an integral part of the regular collegiate instruction.

Miss Alba Bales, head of the home economics department, attended the meetings of the National Association of Home Economcis, held at the Oregon Agricultural College, Corvallis, Oregon, during August.

Plans are being formulated for a trip to eastern states by a debating team of the college this fall, according to the board of forensic control. Six eastern colleges which have signified their willingness to meet the Bison debaters are: Michigan Aggies, Penn State, University of Maryland, Massachusetts, New Hampshire, and Connecticut Aggies.

Exhibits of the college's activities, dairy cattle demonstrations and milk production guessing contests, a model community building in daily use, boys' and girls' club work, were projects which made A. C.'s showing at the State Fair, Fargo, July 17 to 24, the most inclusive that have been attempted.

Although 80 percent of the 145,000 women in North Dakota who are more than 21 years old are home-makers, only 1515 girls in the state are receiving training in home-making, a recent survey of the state shows.

Arne Helgeson, Hensel, and John Howe, Edgeley, attended the annual regional conference of student Y. M. C. A. at Geneva, Wisconsin, as delegates from the college, this summer.

Some 25 men covered about 20 counties of North Dakota during this year's barberry eradication drive, conducted under the direction of George C. Mayone, '17. Barberry bushes, which harbor the destructive black rust of wheat were found in all of the counties surveyed.

Hal C. Pollock, '14, Fargo, is the new county agent of La Moure county.

More than 1000 plants are native to North Dakota, according to a recent bulletin of the Torrey Botanical Club, New York City, which lists 40 new plants classified by O. A. Stevens of the botany department.

Soil surveys of North Dakota counties were resumed this summer in the northwestern part of Cass county, under the direction of Dr. H. L. Walster, agronomist.

R. L. Aney, graduate of South Dakota State College, was appointed this summer as county agent of Divide county to succeed Basil Bennett.

One hundred farmers of 35 counties in North Dakota are keeping careful cost accounts in co-operation with studies in progress by Rex E. Willard, farm economist at the college.

Fourteen high schools of the state are teaching agriculture under the provisions of the federal Smith-Hughes law, according to E. H. Jones, professor of agricultural education, who states that several additional schools are planning to undertake the work this year.

A two-term course in general biology will take the place of the general courses in botany and zoology for freshmen, according to Dr. E. S. Reynolds, botanist. Dr. R. T. Hance, zoologist, will co-operate in giving the new course.

That bee keeping, little recognized as an industry in the past, will be a major industry in North Dakota in 10 years is the prediction of Frank C. Pellett, well-known bee-man, editor of the American Bee Journal, and author of several books on bee culture, who toured the state with Dr. R. L. Webster, entomologist at the college, during the latter part of August in the interests of the bee industry. North Dakota is in the center of an area splendidly adapted to bee culture, Mr. Pellett stated.

Arthur Ostman, Fargo, will edit this year's student annual, the Agassiz. Donald Peet, Wolverton, Minn., is business manager.

Dr. W. T. Pearce, head of the School of Chemistry, attended the annual convention of the American Chemical Society in Pittsburg, September 10. Following the meeting he visited industrial chemistry laboratories in Detroit, New York, New Jersey, and Ohio.

Some 20 agricultural students were on hand Sept. 14 to start training and competing for the livestock judging team which will represent the college at the International Live Stock Exposition in November and early December. The men were all members of the Saddle and Sirloin Club, agricultural students club. The organization plans to hold regular programs throughout the academic year, and special features such as the ''haywire'' orchestra, the barnyard chorus, a barn dance, and livestock parades.

A. L. Leathers, formerly professor of zoology at the college was seriously injured in an automobile accident in the East this summer. Recent word from his home indicates that his recovery is assured. Prof. and Mrs. Leathers are located at Oak Lawn, R. I.

''A tree for every cow'' is a slogan adopted to cover part of the horticultural extension campaign for the coming year, which will be conducted under the direction of C. B. Waldron, horticulturist. Professor Waldron plans to devote his entire time this year to horticultural work, including the new extension projects.

BIRTHS

To Mr. and Mrs. Walter McKim. Palmerton, Pa., a son, Frank Stanwood, on Sept. 9. Walter McKim, instructor in mathematics at the Agricultural College last year, was graduated from A. C. in 1920, and Mrs. McKim, formerly Miss Grace Kotchian of Wimbledon, N. D., was a member of the class of 1922.

FALL TERM CALENDAR

Oct. 16. Monday — Registration begins for the curricula in drafting and building, farm husbandry, homemaking and power machinery.

Oct. 21. Saturday—Harvest festival.

Nov. 10. Friday—Ninth annual industrial course demonstration contest.

Nov. 22. Wednesday — Edwin Booth dramatic club fall term play.

Nov. 30. Thursday — Thanksgiving day.

Dec. 1. Friday—Third annual one-act play contest.

Dec. 10. Sunday—Eighth annual Christmas program.

Dec. 18, 19, 20. Monday, Tuesday, Wednesday — Final examinations. Registration for winter term.

Dec. 21 — Jan. 1. Thursday to Monday, inclusive—Christmas recess.

FAMOUS BEGINNINGS. ''At the close of the last hour we were talking about the etaoin shrdlu, and I pointed out that——''

REFORM—Making other people step lively to rules of conduct that we approve, and they do not.

PUZZLE. Watching Roy Corbett, college photographer, rip the cover from a box, only to discover that he had torn the bottom from an empty one. What, we ask you seriously, do you think of that?

AN OPTIMIST. Someone calls an optimist the man that can make lemonade from the lemons that are handed him. But lemonade alone makes poor steady diet. Some men enjoy a continuous supply of lemons, muses our informer. Others investigate the lemon and the general food supply.

JUDGMENTS. Oi, yoi! That lop-eared old duffer is a good scout after all! Moral: Surface indications are the bases of most judgments. Under stress or during keen concentration the basis of a true judgment crops up. Accurate judgments and surprises often grow up together.

EDUCATION. Anything you choose to call it,—greater usefulness, doing something different, following a fad, spending dad's money, pounding sand into the proverbial rat-hole, sitting by said rat-hole in contemplation of the usefulness of pounding sand in a rat-hole, absorbing information, using information and locating its sources, getting a degree by hook or crook, and so on.

NEWSPAPERS. Widely read sheets written for the day on which they are published, and criticised as though they were literature written for all time. Sometimes unpopular because they reveal society to itself and society doesn't like it. Newspapers express society, but literature gives an author a means of expression. After all, only newspapers can create a common consciousness, and diffuse the facts and opinions that make democracy possible.

SPEECHES. Great speeches unknown to fame are those stirring, unpublished masterpieces which speakers rehearse on their way home from a speaking engagement someone points out. Ditto the clever retorts and sparkling wit generated following a banquet.

COLLEGE STATE

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Correspondence Study Courses Open Vast Field

By Arland D. Weeks

Head, School of Education, N. D. A. C.

WITHIN the past few years a large development has taken place in the extension of educational facilities to persons not in residence at college or university. Reports show a large and increasing registration for the type of instruction designated as home study, extramural, extension or correspondence work. Indeed it may be said that the sphere of higher education is rapidly expanding to include impressive numbers of persons living at a distance from educational centers. Associated with the University of Wisconsin as non-resident students are some 23,000 persons.

HOME study or correspondence courses, properly administered, show such promise, that state institutions are keenly enthusiastic regarding their development.

Such expansion of the influence of higher education is highly significant. No educational development at the present time seems to carry greater promise of contributing in a substantial manner to the increase of popular intelligence. The original conception of a university was that of an educational center at which youthful students would assemble. But no one is too old to be a student, and educational administration is increasingly meeting the need of information felt by the adult community.

The demand for home study and correspondence work arises from various causes. A period of twenty-five years discredits a considerable amount of information; a person transferred Rip Van Winkle-like from a century ago to the present would find a large part of his knowledge obsolete and unreliable. Current instruction corrects point of view and supplies deficiencies of instruction for the older adult.

In quantity of instruction society has always been deficient. A common school education has not heretofore been universal; secondary education has been comparatively rare; collegiate education rarer still. Hence the cultural sky line of society shows long stretches of extreme depression and low visibility. The market for the wares of the college is correspondingly large in prospect.

Exigencies of career and change of occupation oftentimes create a sudden consciousness of need for further instruction —not that the demand always becomes articulate or is always suitably directed to sources of information. Mobility in occupation is one of the characteristics of American life. A great many people make some change in their occupations, and when such change is made they are likely to feel the need of information. Even in case no change from occupation to occupation takes place, new developments within occupations often necessitate a seeking of further instruction.

From a social point of view the development of correspondence courses and home study work is of special promise. By such means the direction of popular culture is contested with other agencies of adult education such as the movies and the newspapers. Along with the one-sided political speech the treatise on economics or political science lays claim to attention. The steadying effects of the impartial purpose and comprehensive view of the scholar are felt, while well selected and carefully organized culture materials compete with the casual and indifferent subject matter of the daily run.

Study at Leisure

Off the-campus instruction takes up the slack of leisure of unemployment and the shortened working day. In the aggregate there is a vast amount of unemployment, and one of the problems of the times is to deal constructively with periods of leisure. Whether unemployment be voluntary or involuntary, seasonal or daily, a possibility exists for a valuable use of work-free hours.

The observer of social trend—conscious of the ill-fated course of events during the past decade—sees in the widening influence of higher education a ray of hope for a more enlightened administration of political and economic affairs. A "sixth grade civilization" is an unstable one. The need for more perfect vocational knowledge is as nothing compared to the urgency of defining our social problems and rallying such information as would give promise of achieving general welfare.

The audience of higher education includes a large number of persons of comparative immaturity who are unable to go away to school. The expense of going to college has become formidable. Young people who do not have the money to go to college for four years may take a part of the work through correspondence and at study centers. The University of Minnesota permits a student to complete one-half of his credits for graduation by taking correspondence courses. We shall probably see a marked increase of the practice of taking an amount of work by correspondence and other work in residence. In Oregon a large number of vocations are represented in the registration for correspondence courses conducted by the state university. Farmers, housewives, teachers, salesmen, stenographers, bookkeepers, lumbermen and many other groups are represented.

Develops Initiative

There has been the impression that correspondence work must be superficial. On the other hand it is quite possible that the carrying of work in this manner may test the quality of the student fully as much, possibly more, than would be the case with residence work. A degree of resolution and initiative is required for pursuing studies diligently without the stimulus of classmates and the immediate presence of a teacher. Attempts are being made in some institutions to refine and perfect the methods of correspondence instruction to the end that this work shall be a real equivalent of residence work if not surpassing it in certain particulars. Instruction in English is, it is pointed out, a kind of correspondence work anyhow.

It is likely that extramural instruction will be much more fully developed and that the results will justify ambitious programs for such work on the part of colleges and universities. One can not contemplate the possible achievements in this field without becoming enthusiastic. Everybody with at least some college education; everybody with a respect for intelligence and learning and with definite impressions as to how to find out the truth of things; everybody with an extended youth and a long infancy; everybody in touch with the best culture materials; immense vacuities of waiting filled and waste energies utilized for personal and social advancement!

Wheat in several sections of North Dakota is worthy of a premium on the market due to its high gluten content, according to results of recent investigations conducted by C. E. Mangels, cereal chemist at the college, who is conducting tests on wheat sent from scores of North Dakota communities.

Smith-Hughes Agriculture Succeeds in State

By E. H. Jones

State Supervisor, and Professor of Agricultural Education

FOR the present school year, 1922-1923, a total of sixteen high schools, an increase of one over last year in the state of North Dakota are cooperating with the federal and state boards of vocational education in carrying on courses in vocational agricultural education; or in other words, 16 schools are teaching agriculture for the purpose of training young men to put into operation on their own home farms, the most practical, the most scientific and the most successful practices in agriculture.

Trains Local Leaders

At the same time these same schools believing in a well grounded education are training these young men in English, mathematics, science, history, civics, rural sociology and economics with the idea in mind that they shall not be educated away from their home surrounding, but that they shall be educated to become loyal citizens, leaders in the economic and social development of their own local communities.

In organizing the Smith-Hughes departments of vocational education in the various schools of the state, it is the aim of the federal and state boards of vocational education to interfere as little as possible with the existing local school organization, and to cooperate to the fullest extent in subsidizing the vocational work and in assisting the local schools to meet the federal and state vocational plans.

Many of the present rural school curricula have been educating the rural boys and girls away from their home farms and the rural districts. This is a fact largely because the majority of our rural school courses and curricula are organized along the same lines as those which the larger towns and city schools have adopted. This has been natural since the larger towns and cities have built up the stronger educational organizations, and in their desire to strengthen the rural school organization, the rural schools have taken over the urban school organization as a whole and have attempted to build up strong rural schools on the basis of city school organization . The result has been disastrous to our rural communities. The schools have defeated in a measure their very purpose and have actually been educating the more intelligent boys and girls, the natural leaders in their communities, away from the farm and the small rural community. It is well known that approximately only 15 students out of every 100 have entered the high schools, because the students could see no practical training in the courses, usually offered, which would assist them in solving their life problems.

Country Imitates City

In organizing the urban or city school systems certain educational axioms were observed. One of the more important being that young people learn more quickly and more easily when they are taught in terms and experiences with which they are familiar, and on this basis the city school organization has worked out many of the various courses in its curricula. In arithmetic for instance, we find the exercises taken from the merchandise problems of the city; the civic lessons discuss city police, city fire departments, etc.; assignments in rural sociology concern city divorce suits and sweatshop problems; the English theme covers an assignment concerning the face of a certain clock on a certain spire in a certain city, and if the student has not had the opportunity of seeing it personally, he may revise the teacher's description of it in his own words.

If the city school organization is stronger then most rural school organizations,—well and good—it is no sin to imitate it—but in so doing the courses and various curricula should be reorganized in detail. When it comes to a study of civics, it is just as strong an exercise in mental discipline when we assign local community problems. The principles of arithmetic may be illustrated just as well with rural problems. English themes are just as accurate and more interesting when written about a well known nationally advertised dairy cow, which has won the grand sweepstakes prize in its class at the International in Chicago, or possibly a description of a new electric lighting plant found on a neighboring farm, or a bit of natural scenery down by the brook in the rear pasture back of the barn. For rural young folk these problems all have a certain motivation which is lacking when the assignments and discussions are concerned with topics foreign to the experiences of the students.

Trains for Farm

The Smith-Hughes agricultural work is primarily a course in vocational agriculture, training young men for a life work in agriculture. The suggested curriculum in Smith-Hughes work is a four year rural high school curriculum and contains in addition to the vocational subjects in agriculture, all the essential courses necessary for giving the young folk a well sounded training in citizenship. This suggested curriculum recommends courses in English, mathematics, science, history, civics, economics and sociology, each of which should contain the fundamental principles of the several sciences to be studied from the rural life point of view. The principles of chemistry are especially attractive when studied from the point of view of the home and the farm; biology from the standpoint of a study of plant life as illustrated in farm crops, and likewise animal life in the discussion of farm animals. Civics, economics, and sociology when studying rural organizations, merketing, cooperation and rural community problems become vital life factors.

The Smith-Hughes course in vocational agriculture is taking its place among the other curricula and is furnishing the young people in our rural communities a practical education in real rural life problems. It strengthens the local rural school organization in that the course trains the young rural folk to study the problems of their own local community. To the extent to which the young folk are able to assist in solving the problems of their own local community, they will be better prepared to solve other problems with which they may later come in contact, perhaps in new locations or new fields of endeavor.

Work is Inexpensive

Some school officials and school boards have considered the Smith-Hughes agricultural department to be an expensive factor in the school organization, whereas in reality it is one of the most inexpensive departments in the whole school.

One school after making a detailed study of the situation a year ago, found that the amount of money returned as net profit to the Smith-Hughes students in agriculture from their home projects carried back into that community in one year, not only enough money to pay the $1,000 which was the local district's share of the instructor's salary, but enough to cover the necessary four or five hundred dollar running expense account of the department, and also returned in addition as net returns enough cash to the boys in the community to pay approximately $700 rent for the agricultural room and its equipment furnished by the district for that year. What other departments are capable of making such a record?

It is not, however, the financial record in this work that is the most successful factor. The most successful factor is the fact that this course is training young men to meet and solve some of their own farm and local problems. It does not as a major activity educate the young people away from the rural communities of our state to the large urban centers in the central or far eastern states. Some special advantages in this work are that the course is much more likely to hold the interests of the young men over a period when they have heretofore thought a high school course offered them nothing of practical value and as a result a large percentage of the young rural folk quit their school activities at about the sixth, seventh or eighth grades.

Meets College Standards

The course as suggested by the state board of vocational education meets the standards of the general entrance qualifications to the State University and likewise the North Dakota Agricultural College. This is a very valuable factor for just because you or I happened to be born on a farm does not mean that we should stay there all our lives, any more than it means that my son or your son should become a teacher or a preacher, or a lawyer because you or I may happen to follow one or the other of these professions. These factors result in a larger percentage of young people being held in school work; and being tided over the disinterested period. A considerable number later become interested in securing a higher education, even though this may not be the primary function of the Smith-Hughes vocational course in agriculture.

Honorary Scholastic Organizations

By Prof. C. I. Nelson

President, North Dakota Chapter, Phi Kappa Phi

IN all the history of man the state of the laborer, of the slave to toil, of the bondman, was never hopeless so long as some fragments of the mind of Man was unchained and struggled upward to the light of reason and of clear vision. So long as there was a Socrates the pen had hope, so long as there was a Galileo the long dark ages were not so dark, so long as there was a Jesus the slave could hope for freedom. But whenever a people was so beset by darkness and unfathomable gloom that no scholar mind could reach up into the light of truth then indeed hope was almost extinguished. Through all the ages the scholar whether he was Egyptian, Assyrian, Jew or Saxon, has been the emblem of progress for mankind.

AT the North Dakota Agricultural College, as at other institutions, election to such honorary fraternities as Phi Kappa Phi is the highest scholastic honor a student can win. Election marks a student as possessing the honor spirit, or the spirit of a student.

The fabric of society has ever been such that some must till the soil, some must dig in the rock, some must fish in the sea and some must spin at the loom. This division of labor is necessary that the whole race may exist as such. Nature has been friendly only in offering to mankind what she offers to every other species of animal in her realm. She has laid upon him the same necessity of fighting the rigors of changing seasons, the cataclysms of force, and the erosions of time. To some species from her laboratory she offered only inevitable extinction, and to man only has she offered the means of knowing how to exist in spite of competition.

Even in the utilization of the powers of Mind she has offered no surcease from the constant struggle. Whenever man has rested upon his mental achievements and felt satisfied with his erstwhile successful struggle with the forces of nature she has shown the ponderousness of her inertia and, passing him, left him gasping with the threat of extinction.

Man, as Emerson said, can only be seen when all of society is seen, the Whole Man. The plowman cannot be blamed for failing to see the dignity in his work, nor can the miner, nor the shop-worker, nor any drudge. They do their part as best they can under the duress. What a need there is then for the mind of the scholar to unearth the ideals of labor and effort, and to hold steadfast for all the struggling part of the whole man the hope of progress.

The mere student of books and data, cold from former generations, does not hold forth any beacon light of hope. He merely offers a false content, or no contentment at all, to the one who has lost hope in things as they are, which is as he knows them in his toil. What comfort can it give the drudge to know that some book worm at the library is a repository for all the isolated facts of a period! He is but another drudge and doesn't know any better. What man needs is the scholar who rises above his books, his data, and his facts, to new achievements. Such a one is doing his part although it is not that of the toiler in the fields and factory. The mere student of complaisant facts is a scholar without honor. He is not honest to his fellow men.

It has been the custom in institutions of learning to recognize by some distinction the one who gives promise of being imbued with the Honor of Scholarship. He seems to be not merely an impressionistic wax cylinder to record the chronological utterances of four years of college classroom life but to catch the spirit

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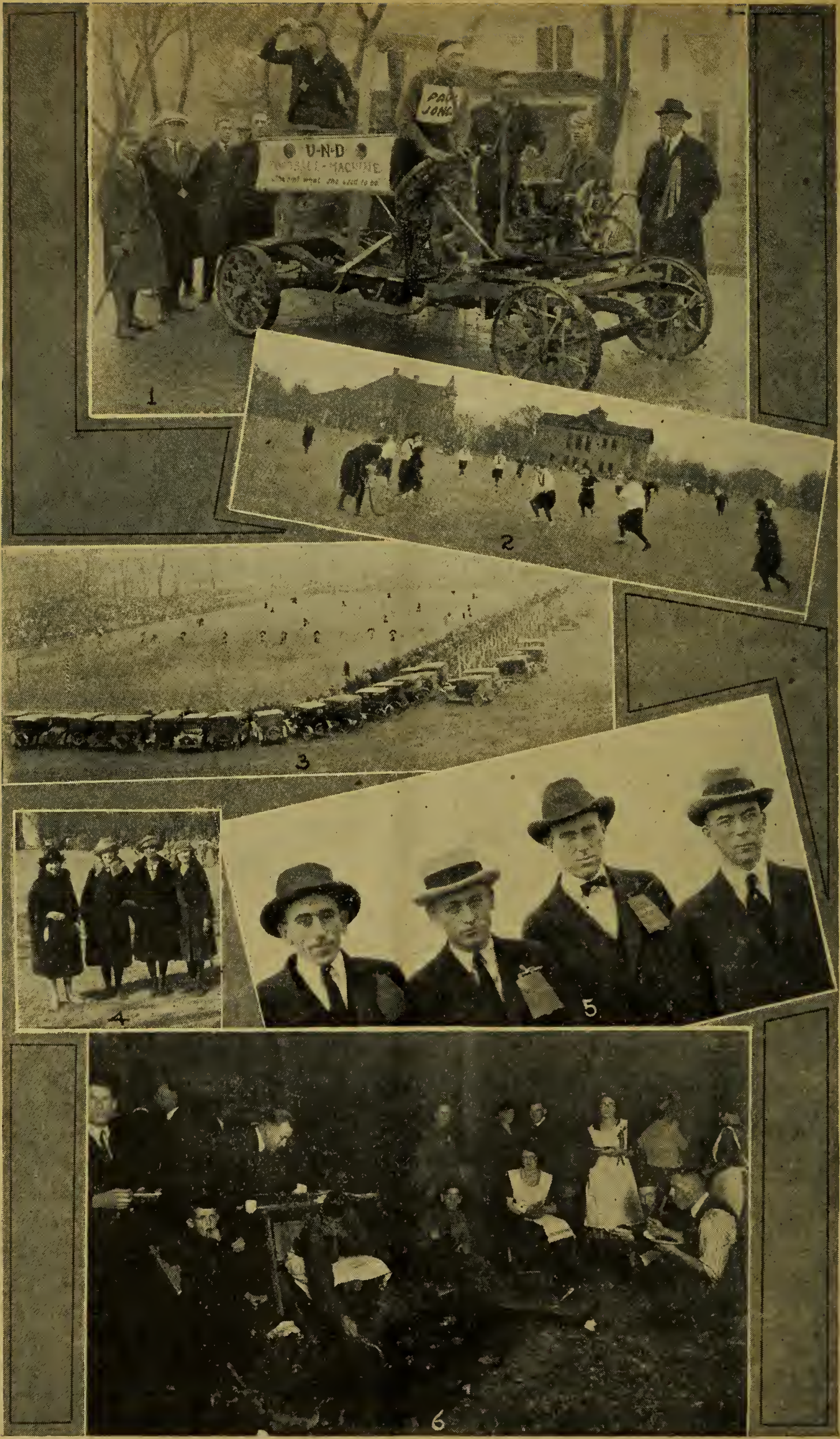

HOME COMING FEATURES NOVEMBER ACTIVITIES

1. A sample of the unique units in the home coming parade.

2. Girls' hockey games furnish campus entertainment in the afternoon.

3. The kick-off, Home Coming Day, November 4.

4. Sponsors of the companies in the cadet battalion. Left to right: Mary Ross, Fargo; Viola Larson, Hendrum, Minn.; Alice Coulter, East Grand Forks, Minn.; and Elsie Skadland, Fargo.

5. A. C.'s dairy judging team brought home first honors among contesting state teams from the competition at the National Dairy Show, St. Paul, October 7 to 14. From left to right: Burt Oderkirk, '23, Fargo; Harper Brush, '23, Lisbon; Obert Skrie, '24, Fargo; and J. R. Dice, coach.

6. A corner of the Home Coming barbecue.

Educational Housecleaning

DR. ROBERT T. HANCE
Professor of Zoology, N. D. A. C.

A patchwork quilt that fails to cover one's feet when pulled up to the neck falls short of its cold weather possibilities even as a number of unconnected excursions into various fields of learning fail to constitute a general or liberal education.

As no one would seriously contend that the patches alone, in the first instance, without the uniting thread would serve a useful purpose so teachers are questioning the educational covering value of unconnected courses taken throughout the four years of college. Such courses frequently mean little else in the student's life than so many class-room hours for which they are paid in credits—the coin of the academic world.

Need Unifying Courses

The human mind is so constituted that it will seldom hunt for such intellectual difficulties as the linking together of thoughts gained from various instructors and without the incentive of unifying courses or of clever and suggestive instruction in the individual fields of study, the thread that would draw all the educational patchwork together may never have the opportunity of performing its task. More and more of our American institutions are introducing courses designed to bind together the student's experiences, stimulating him to think, correlate and apply what he knows. This is indeed instruction worthy of the name and fills a long vacant place in the curriculum of the American college.

The consideration of teaching the student to think rather than to memorize goes hand in hand with the problem of the content of our courses. After constantly seeing students throwing enthusiastic energy into what is significantly termed the college **activities** in distinction to class work it is bound to give us pause for speculation as to whether the removal of the cobwebs from our academic halls might not result in a brightness that would capture a just portion of enthusiasm for the intellectual indoor sports.

Teach How To Think

We cannot be content to teach as our forefathers taught even though they in their time were successful. On the whole many of us have been inclined to teach as though our students were going to be specialists in our particular subjects instead of realizing that this, in all likelihood, will be the one time in their course when they will come in contact with our work. There is much that a specialist must know which but fogs the issue for one gaining general knowledge and training.

In harmony with the ideas expressed above the Departments of Botany and Zoology of the North Dakota Agricultural College have established a course in the Principles of Plant and Animal Life which introduces the student rapidly though thoroughly into the phenomena of living things, saving through the combination much time and duplication. Instead of two elementary courses, one in botany and one in zoology, a single course in the fundamental principles of biology has been developed. The student cannot be a botanist or a zoologist from such a course, but neither will he be from an elementary course in either. He may, on the other hand, get a more comprehensive view of life and its essential applications to his, than from a more specialized course in botany or zoology. Thus the general student is better served while those needing more special phases of either subject are better cared for in advanced courses where smaller numbers of students make for greater opportunity.

Applied To Biology

A specific example of the methods of this course will illustrate the ideal we are striving for. In biology it has long been the custom to start with the amoeba and to end with man hitting as many forms in between as time and the budget would permit. There are few teachers today who can make such a type course interesting and the student loses the great basic principles of life in viewing its many manifestations. It is far better to demonstrate the principles thoroughly with a few well chosen forms. We want the students to have at the end of their course a realization that metabolism, irritibility, movement, reproduction and growth are the characteristics of living matter. If this can be done and the student then brought to a realization of the organic variations which successfully carry on these functions, he has acquired about all of biology that will be useful to him. If his first experience holds his attention then he may go on into the more advanced and specialized courses. In this method only the time honored, traditional and more or less useless detail is sacrificed. The fundamentals will stand out sharply in relief and in that form will not readily slip away. In every subject experience must be summarized and coordinated and here this is accomplished through the preparation by the student of frequent papers prepared with care as regards composition and outlining in readable form the content of assigned topics.

High School Problem Similar

While the foregoing has been written largely with the college student in mind I think that it will apply fairly readily to the education of the younger individual in high school. Despite much talk to the contrary I have never been able to see that the pedagogical problems of college and high school were basically different. All students need opportunity to think and to practice thinking. Too often high school courses are college courses cut down without much regard to fit and when it is recalled that they might not have fitted the people for whom they were originally intended the outcome is obvious. The just condemnation so frequently made by college teachers, of the students received from high schools is really based on their preliminary cramming with facts when they needed training in thinking. With a satisfactory method of seeking knowledge acquired the rest will be easy. Perhaps the words of Galileo still hold: "You cannot teach a man anything; you can only help him to find it within himself."

So it behooves us to be constantly cleaning our academic houses that they be not rendered unattractive with the outworn articles of the past.

(Continued from page 5)

of duty to man that lighted the face of the scholars before him whose books line his library. This one is eager to take all the data he can get and then build upon it for his own day. This is a student for man, and because he is whole man he is an honor scholar.

Our own institution has its honor societies. Members of these societies should represent those who have taken what they can get from the men of the past in the class room and have not failed to get with it the spirit of service that inspired the deeds. And they show that they appreciate the right of inheritance, but know that all progress is contemporary. We look to these individuals to be grateful enough for the opportunities of the classroom that they will not waste them. Having obtained what they can from the institution we look for them to assume their place within the fabric of society for service. This is an honor student, and only this kind.

In the selection of honor students it is always possible to be mistaken in individuals. Apparent appreciation of the service to be rendered and of the real worth of classroom materials available may be unreal, but nevertheless it is the unchangeable purpose of a true honor society to encourage the student who is already an honor student by virtue of his effort and purpose. An honor society is not devised to pin ribbons or Croix de Guerre medals upon the breasts of fighters who have finished but rather upon finished fighters. The purpose of an honor society is to lay the palm of approval upon the shoulder of the student who has just had his commencement and say, "God bless you, brother, hold steadfast."

If A. C. can have a little more of such an honor spirit among its students who graduate, and a little more recognition of such a purpose in honor societies on the part of its student body, it will be well. For when the student body recognizes the justice of honors bestowed upon the small group deemed worthy when measured by the standard herein set forth, and no longer considers it a sort of seclusive lodge membership or a bridge-party favor representing the accumulation of lottery points won in classrooms, then that entire student body is in a large measure an honor scholarship student body.

What of North Dakota's Industrial Future?

By Dr. E. D. Ross

Professor of History, N. D. A. C.

At the present stage of development, a consideration of North Dakota's industrial prospects might seem to belong in the realm of prophecy in which the student of history has no place; but here and there foundation stones in the state's industrial structure may be noted. and helpful conclusions as to the lines and limits of future growth may be drawn from the experiences of older countries and of older sections of the United States in rearing their vast citadels of the Iron Man.

How in the historian's opinion will North Dakota progress industrially? This is the second of a series of historical sidelights on North Dakota.

With the proud distinction of being the most agricultural of American commonwealths — with three-fifths of the land and nearly ninety per cent of the population devoted to farming as recently as 1914 — North Dakota's industrialization has of necessity been relatively slight. In 1914 the state ranked forty-seventh in value of manufactured products, forty-eighth in number of wage earners, and forty-seventh in value added by manufacture; while the proportionate value was but one-tenth of one per cent of the country's total.

Nevertheless real beginnings have been made. Nature has provided the basic resources, and human enterprise has extended the arteries for their transportation. First of all loom products of farm and ranch, for more than a dozen of the country's leading manufactures draw their materials from agriculture; abundant clay deposits afford the foundations for a new-world ''five towns''; latent power of unknown proportions awaits release in the vast area of brown coal. Experiments, technical and financial, in the industrial utilization of these raw materials have been under way for over two decades. The exploitation of the fuel supply for domestic, factory, and motive purposes has been the subject of much scientific investigation; the milling industry has been going through the initial stages; packing plants have arisen at this source of supply; and pioneer brick and pottery works have been launched.

What of our future industrially? Viewing the trail of the industrial revolution across western Europe and the older portions of our own land, what are the possibilities and the desiderata? In the first place the spectacular achievements of this machine age should not blind us to the basic position which agriculture has held and still holds in a nation's economy. No economic lesson of the World War stands out more clearly. Industrialization, along with its possibilities of huge gains, involves great risks and inevitable social and economic disadvantages. No people has exchanged the natural security of an agricultural life for the stress and strain of the factory regime until forced by the conditions of their progress to make the transition. Pressure of people upon resources drove the centre of English population from the Midlands to the regions of coal and iron. Japan with the prospect of becoming the England of the East still reaches out for farm lands. In our Northeast, Middle West and South great factories have arisen only after the returns from extensive agriculture have been fully exploited.

In spite of all the applications of ''Yankee genius'' to invention and business organization, a high degree of industrialization has thus been postponed until comparatively recent times by our successive frontiers of agricultural opportunity. And we could well afford to wait! Truly might Webster say, in 1820, that he felt ''no desire to push capital into extensive manufactures faster than the general progress of our wealth and population propels it. I am not in haste to see Sheffields and Birminghams in America.'' Our much-lauded ''golden age'' of the fifties was organized about ''mills'' in the literal sense of the word, producing for comparatively local markets. Their size and self-assertiveness causes us to overlook the youth of our industrial giants. ''It is only since 1870,'' says Malcolm Keir,'' that we have really discovered our great resources for manufacturing and have begun to utilize them to our advantage. Manufacturing, then, is a new feature in our economic life.''

A tendency in the evolution of our manufactures that has been evident from the start and that has become increasingly noticeable is that toward the localization of industry, the territorial division of labor. The chief influences recognized in such a concentration of production are available power, adequate transportation facilities, abundant capital, requisite labor supply, proximity of raw materials, nearness to markets, and the momentum of an early start. However it is always to be kept in mind that these factors ''operate in varying proportions'' and that no one or a given combination would, in itself, insure predominance or even success. For example ''the market has been at all times the most influential factor directing the destinies of the iron and steel business;'' the factors of available power and capital planted the cotton industry in New England; brick production has always hovered about the congested centres; and paper manufacture has gone through the cycle of labor, raw materials, improved machinery, and raw materials as determining factors. Manufacture of food products has tended in general to be rather widely dispersed; but two notable exceptions are meat packing which involves extreme division of labor and the closest utilization of by-products, and flour-milling which, from its elaborate machine equipment, has become large—scale and highly capitalized. As between regions possessing the requisite conditions, there has been an ever-increasing tendency for our great industries to centre at points offering the ''greatest combination of advantages.''

Gradual Industrial Growth

The application of these economic principles, established by historic facts, to the local situation is readily apparent. A dozen years ago a writer in the **North Dakota Magazine** after picturing with most commendable enthusiasm the state's fuel and raw material resources concluded with this rhetorical question, ''Is it then a wild dream that sees this state, in the not distant future, the greatest industrial one in the union?'' Such a transformation literally achieved, on this remnant of the last American frontier would be rather fearful to contemplate. The mental picture of concentrated masses pushing across the continent suggests the over-peopled and under-nourished Far East. We may well be thankful, and the Nation may be thankful, for the breathing space of the open prairie, for its economic and social opportunities. That these blessings to be realized fully must be progressively developed and conserved is self evident. The highest utilization and, in the long run, the self-preservation of our agricultural economy necessitates a certain degree of industrial growth. The state's great resources of raw materials cannot be shipped out bodily, year after year, without an eventual impoverishment. The by-products and, with ever-growing population, an increasing supply of finished products must be produced and consumed within the state's own borders.

Any program that did not provide for such a gradual but steady supplemental industrialization would be short-sighted indeed. But all past experiences, at home and abroad, point inevitably to the conclusion that a highly-developed industrial system, economically and socially sound, and hence enduring, can come only in the fullness of time.

Boys and girls of North Dakota repeated their successes of last year when they won two first places, a third, and a fifth in competition with teams from nine other states at the Inter-state fair at Sioux City, Iowa, this fall.

Y. W. C. A. girls of the college sold forget-me-nots on the campus and athletic field on home-coming day, November 4, for the disabled veterans.

Home Coming Day Sets Record

By SIDNEY W. HOOPER, '17

ALUMNI of the North Dakota Agricultural College and business men and residents of Fargo in no uncertain terms demonstrated on Home-Coming Day, Saturday, November 4, that they are standing squarely behind the institution.

Practically every student at the College, more than 500 alumni and former students, and about 3,500 residents of Fargo resolved themselves into a committee of the whole and turned out Saturday afternoon with one purpose in view—to see the Aggies take the University team into camp. The Bisons failed of victory, but they went down to defeat with all hands fighting and colors flying. With the teams evenly matched, battling up and down the field, and neither seriously threatening the other's goal, Lady Luck smiled on the University for but a moment and the only touchdown of the game followed.

Crowd Shows Old Spirit

Despite the defeat, the plucky battle put up by the Aggies left a lasting impression on the hearts of the townspeople and students who witnessed the contest, and nothing but favorable comment was heard following the game. It's easy to ''Hip! Hip! Hurrah!'' for a winning team, but the Bison followers, including both city residents and students, showed that they were true blue sports by taking the results of the game in the spirit that they did.

From the comments heard on every hand, Home-Coming Day is looming up in the minds of the grads and former students as a day during which more genuine pleasure can be realized than on Christmas, Thanksgiving, Armistice day, or even Pay day. ''Experiences of Home-Coming Day are the dividends we receive from the time spent and the friendships made in our student days at our Alma Mater,'' declared one enthusiastic alumnus.

Joint committees of students and the Alumni Association provided a program of entertainment that left a warm spot in the hearts of the visitors. The alumni committee in charge of arrangements consisted of: C. A. Williams, Miss Marjorie Lieberg, Mrs. S. Oftedal, B. F. Meinecke, R. E. F. Colley, Theodore Stoa, L. R. Waldron, and Dr. Albert Hallenberg. The student homecoming committee included: Theodore Greenfield, Fessenden, Chairman; George Bohlig, Fargo; Mary Ross, Fargo; Violet Erickson, Crosby; Lillian Hovland, Flaxton; Howard Bateson, Rolla; Frank Leakey, Trotter; Claude Ebling, Barnesville; and Harry Erps, Fargo.

U Brings 500

The parade in the morning typified the spirit of ''Beat the U'' that pervaded the whole school. Starting from the College gate, the student body, more than a thousand strong, marched down to the Great Northern depot and met the University special from Grand Forks. Five hundred students from that institution, who came down on the train, entered into the spirit of the affair and joined in the procession, which then marched through the Broadway district.

Artists who supply ''comics'' to the newspapers would have found sufficient subject matter and plots to last them for several years, had they been fortunate enough to witness the parade and the many caricatures of University organizations. A ''hay wire'' cracked squad represented the University R. O. T. C., while the student weekly paper there was portrayed by a more or less familiar farm implement. Several students beating on a piece of sheet iron on which was painted a large ''U'' left little to the immagination regarding the idea they were trying to convey. Students were decked in green and yellow caps. Business houses had novel decorations in their windows.

Eats and Dance Follow

The barbecue held at the judging pavilion following the game was a treat for an epicure, and the sight of L. R. Waldron with sleeves rolled up and wearing a white apron superintending the cooking and serving was worth more than the price of admission. Steaks grilled over a coal fire formed the piece de resistance, while baked potatoes, beans like mother used to bake, and numerous other dishes supplied the necessary number of calories to hit the spot and knock it for a goal.

After laughing themselves sick at the parade, witnessing a wonderful football game, and eating a real square meal, the home-comers rounded out a day of pleasure with a dance held at the auditorium in the evening. University students and Aggies to the number of nearly a thousand were in attendance.

Was Home Coming Day a success? "Why," declared one attendant, "a program like that would make a would-be suicide contemplate competition for a record for longevity!"

FROM PRESIDENT KANE, U. OF N. D.

"I want to acknowledge the fine attitude as hosts which your people took. I have in mind such evidence of this spirit as the formal invitation by the manager sent to our students and read at convocation.

"The plans showed that the interest of the visitors had been taken into full account in these plans. Likewise I received a letter personally from the management enclosing tickets to the barbecue. The plans for the parade gave our students a full place to show their preparation for supporting their team.

"These are all small things in themselves, but are quite significant in indicating the general spirit in back of them. They form a wholesome background and are a very important security.

"The field was a great scene while the game was on. The game was distinctly a credit to the teams and showed up the institutions to good advantage—Thomas F. Kane, president, U. of N. D., in a letter to college officials.

Irving Courtice, formerly county boys' and girls' club leader at Forman, N. D., is the new county extension agent for Benson county with headquarters at Minnewaukan. Mr. Courtice and Miss Mildred Jeanette Taylor were married at Forman, September 30, at the home of the bride's mother, Mrs. Minnie Taylor. They are now making their home at Minnewaukan.

Members of the Saddle and Sirloin Club were addressed by President Coulter at their first fall meeting, October 24.

Five hundred poultry culling demonstrations held this fall in North Dakota under the direction of O. A. Barton and county agents, resulted in the summary execution of some 40,000 recalcitrant biddies that could not be coaxed to yield more hen-fruit. One of every three hens in the state is a loafer, according to Mr. Barton.

Dr. A. H. Benton is spending a month in the East and Middle West conferring with officials of the U. S. department of agriculture, and leaders of cooperative marketing organizations.

Col. Boyden of the Portland Cement Company spoke to an audience of students, architects, contractors and engineers in the Engineering building of the college, October 16, on concrete construction.

The new home economics cottage in process of construction.

Laying of the corner stone of the new home economics practice cottage was observed as a part of women's day at the college, Saturday, October 21. Miss Minnie J. Nielson, state superintendent of public instruction, Mrs. Ralph Weible, Fargo, an alumna of the college, Dr. John Lee Coulter, president, and student representatives spoke during the exercises.

Enrollment in the industrial courses in agriculture, home-making, drafting and building, and power machinery, which opened October 17, raised the total enrollment of the college to more than 1,000. Winter short courses open January 2.

Disabled ex-soldiers, students at the college, made a land inspection trip in Cass county October 28, for the purpose of investigating possibilities of settling in the county following their training at the college. The trip was made under the direction of T. D. Thordason, Coordinator for the U. S. Veteran Bureau at the college.

Thirty-three of the 107 vocational veterans in training at A. C. are enrolled in regular college courses, and the rest in industrial courses.

Season Proves Turning Point for Bisons

By E. Verle Deach, '25

With dope pointing to a victory over the Morningside College eleven at Sioux City, Iowa, on Thanksgiving day, the Bison eleven of the North Dakota Agriculture College is nearing the completion of a football season that will go down on record as one of great accomplishments. The Bisons, under the combined efforts of their two well-known mentors, Stanley E. Borleske and Joe Cutting, have been developed into a football machine which in one season has raised their school from a position in the second division to one of high rank, in competition with the most powerful teams in the North Central Intercollegiate conference.

In the games played this season the Bisons have scored a total of 216 points as compared with 27 scored on them by their opponents. Only two teams, South Dakota State and the University of North Dakota, have been able to stand up against the powerful offensive of the fighting Bisons. Montana State, hailed as one of the most powerful elevens in the state to the west, cracked under the onrush of the Bison offense and went down to defeat by a score of 55 to 0. They have won the distinction of having one of the most powerful defensive elevens in the conference.

The 27 points scored against them came as a result of forward pass attacks, and up to date, no team has been able to score thru the Bison's line by straight football. North Dakota University, touted by their coach, Paul Davis, as being the strongest team that ever represented that institution, met one of the toughest propositions of the year when they went against the Bison machine to decide the championship of North Dakota, and were able to win by a lucky seven points which came as a result of a successful forward pass. On straight football they were unable to pierce the Aggie line for any consistent gains. The Aggie defense showed great strength in piling up the speedy and hard hitting University attack.

The second great test of their strength came on November 11 when they met the South Dakota State College at Brookings. South Dakota State, although beaten by the University of North Dakota, has the reputation of being by far the strongest team in the conference. The Jackrabbits scored a touchdown early in the season against Wisconsin, one of the strongest teams of the Big Ten. As their mentor Coach West, remarked, they were playing in the best form that they had shown all season when they met the Aggies. Playing wonderful football, they tore through the Bisons for long gains, but met a stone wall when they neared scoring territory. For 16 downs the Aggies held them within their two-yard line and their two winning counters came by the aerial route after they had failed to tear their way through the Aggie forward wall. Holding this strong aggregation to a 13 to 0 score, the Aggies won the distinction of having a defense above par in the conference.

Superior Normal, boasting of having the best eleven in its history, suffered defeat at the hands of the Bisons by a score of 6 to 0. This game, played on November 18, under almost impossible weather conditions, brought the Aggies into the class of the strongest colleges in Minnesota and Wisconsin. Morningside College, at Sioux City, Iowa, went down to defeat Saturday at the hands of South Dakota State, 49 to 0. This gives the Aggies a decided edge over the Morningside crew when they meet on Thanksgiving day. This game will end the Bison's football season of 1922 and, regardless of the outcome, the results so far have been sufficient to mark them as a high class eleven.

With four of last year's regulars, as a nucleus around which to build this year's team, the Bison squad has been built up into an organization of 20 first string warriors who have distinguished themselves against the more experienced and older varsity elevens in the conference. With four full elevens reporting for the opening practice, the Bison coaches have started from the ground up and developed a wealth of young material that is sure to result in a more powerful and more experienced squad next year. Last year, when cold and disagreeable weather found the squad dwindling down to about 14 or 15 regulars, finds its reverse in this season when the same conditions find at least two men for every position still out battling for a place on the first string.

This year may be considered a great steppingstone to the success of next year and of others to come. Next year the squad will be minus the services of four of this year's regulars who are members of this year's senior class. They are: Latimer, center; Chaney, halfback; Duerner, quarter; and Robbins, tackle. By developing the new material, the coaches, with the large number of promising high school stars that have signified their intention of entering the institution next fall, will have plenty of men to fill up the gaps left by the graduating letter men.

The institution is forging ahead by leaps and bounds in all lines of activity. With an increased enrollment, which totals over the one thousand mark and the city of Fargo backing the school to the limit, there is a promising outlook for the most successful year in the history of the school next season. With its strong coaching staff, its splendid equipment and its exceptionally fine gridiron and other advantageous facilities, the school has much to offer to promising young athletes thruout the state who wish to make a bid for prominence in college athletics.

Sophs Beat Seniors in Class Football Series

Sophomores and Seniors have demonstrated their superiority on the football field, winning from the Freshmen and Juniors respectively by close scores in interclass contests staged during the past month. The Sophs finally conquered the upperclass men on November 15 by defeating the Seniors 7 to 0 in a short hard fought battle. The Seniors vanquished the Juniors by the score of 13 to 0, while the Sophomores nosed out a victory by a 3 to 0 count against their less mature opponents.

Barberry eradication work in the state during summer and fall was carried on by 25 workers who covered every farm in 16 counties and found 1855 bushes,—harborers of the dreaded stem rust of wheat. Exactly 37 counties have now been covered, according to George C. Mayoue, '17, in charge of the work.

With Sivertson, captain of last year's basketball team, the only man lost to the squad through graduation, and with a host of good new material on hand, basketball practice began at the college during the last week in November. The conference schedule is now being arranged.

Percy Flem (capt.)

THANK YOU, THANK YOU, BUT YOU'RE DOING IT

"Since coming here," writes A. R. Matters, '17, 310 Postal Telegraph Building, Kansas City, Missouri, in the federal grain supervision service, "I have not been able to keep in touch with affairs at A. C. except through the columns of College and State, and I must say that each issue is full of news. I only wish it came more frequently."

"I receive College and State regularly and I must say that it is a pleasure to read of the old times and of the folks connected with A. C.," writes H. W. Herzer, H. S. '18, Plaza, N. D.

"As secretary of the N. D. A. C. alumni association," states a letter from Theodore Stoa, '15, "I have been instructed by the association to express their hearty appreciation of College and State, and its policy during the past year. The alumni are hoping that College and State will continue to be the same live and progressive publication."

Among Our A. C. Folks

William Bina of the state hail insurance department at Bismarck stopped adjusting losses long enough to hop onto the train and come to Fargo for the University game and Home-Coming Day. Martin Hagen, manager of the departemnt and '17 graduate of the College, had planned to come but was detained by business.

A. P. (Percy) Beals of the Class of '17 attended the Home-Coming Day program. Percy was slated to represent Rodolph Valentino between halves at the football game and put on a bull slaying or tossing contest. Evidently the bulls heard about it ahead of time, however. as no competitor could be found willing to enter the ring with Beals.

Myron Quammen, '22 pharmacy graduate and part owner of a drug store at Reynolds, N. D., was a College visitor Home-Coming Day.

Warren Dodds, 1917 graduate and member of the Alpha Zeta and Alpha Kappa Phi fraternities, spent Home-Coming Day at the College. Warren brought along his bride of two months and the happy couple enjoyed the sights of the big city over the week-end. Dodds is doing a very creditable job as editor of the Northern Livestock Breeder at Lisbon, the only farm paper published in North Dakota.

Mansfield Smith, '19, who presided at the keystone sack on the Aggie nine for several years, drove to Fargo from Leeds with a party of friends and attended home-coming festivities.

William Zimmerman, graduate of last year who is teaching school at Hunter, N. D., dug out his old uniform and played in the band at the University game.

Eugene "Cholly" Ross, '18 graduate and member of the Aggie football team for several years, drove into Fargo from Hunter, where he is superintendent of schools. Due to the condition of the roads, Cholly arrived here just in time to see the last play of the game, the only successful forward pass that the Aggies made. "From what I saw of the game, the A. C. had it all over the University," was Ross' comment.

Some 15 alumni of Theta Chi who returned for home-coming included:

Lynn Huey, '21, football captain A. C. 1920, coach and instructor at Cavalier high school.

Roy Reis, '20, former A. C. basketball man, teacher and coach at Mandan high school.

Walter Needham, '20, pharmacist, Finley, N. D.

Homer Dixon, '15, Dixon Motor Company, Grand Forks.

Jacob Fjelde, former student, now studying medicine at the University of North Dakota.

Adrian Foley, former student, farmer, Bartlett.

John Swenson, '07, former A. C. football star, farmer, Aneta, N. D.

Palmer Foss, '13, former football and baseball man, pharmacist, Page, N. D.

Melvin Otis, former student, Kindred, N. D.

C. D. Thompson, '17, pharmacist, Devils Lake. N. D.

Raymond Wiper, Bowbells, N. D. bank.

Basil Foley, farmer, Bartlett, N. D.

T. D. Benson, pharmacist, Michigan, N. D.

Elder Otis, former baseball man, pharmacist, Abercrombie, N. D.

Twenty-nine alumni and inactive members of Alpha Kappa Phi were present at the homecoming dinner held in their honor at the chapter house. The party included:

William E. Bina, '20, of the state hail insurance office, Bismarck.

Peter McKenzie, farming at Northwood, N. D.

Mansfield Smith, Leeds, N. D.

Clarence Dragert, '21, teaching, Towner, N. D.

Herbert Zimmerman, '20, principal of schools at Colgate, N. D.

William Zimmerman, '21, teaching, Walcott. N. D.

Ernest Johnson, '19, county engineer, Hillsboro, Traill county, N. D.

William Trepannier, '19, pharmacist, Grand Forks, N. D.

Hugh Trowbridge, '20, farming, Comstock, Minn.

William Benchoff, New Rockford, N. D.

George Maroney and Rushby Divet, Grand Forks, N. D.

Lawrence Olweis, Lake Park, Minn.

Among local grads of the chapter who were present were: Percy Beals, '18, salesman; Sidney W. Hooper, A. C.; Arthur Schollander, '17, insurance agent; George Mayoue, '17, A. C.; Albert Severson, '18, A. C.; Sidney Sorkness, '19, A. C.; Archie Waldie, '20; Phil Moe, '21, architect, Moorhead, Minn.; Joseph Messer, H. S. '20; Henry Stubee; Willard Trumbull, ex-'25.

Paul J. Gwyther, '08, of Fort Rice, N. D., is the new county extension agent for Adams county, with headquarters at Hettinger.

William L. Guy, '16, recently assistant county agent for Cass county, has been appointed county extension agent for the same county to succeed E. A. Willson, who is now state supervisor of extension methods in the Extension Division of the college.

Richard Falkenstein, '22, is a graduate student and scholar in the department of entomology, University of Minnesota.

Hugh Robinson, '20, is teaching at Crookston, Minn.

Clarence Walter, '14, is teaching at Noltimier, N. D.

John Jensen, '22, is taking post-graduate work at the college.

J. W. Neuens, F. H. '18, is ranching at Medora, N. D., and has been handling remount service animals for the government during the past two years. The colts of a government thoroughbred stallion on the ranch are being used as farm horses and for cavalry mounts. "I was able to secure this stallion because I had received industrial course training at the A. C.," he writes, "and was familiar with horse breeding methods."

V. C. Neuens, F. H. '17, lives at 1225 South Ardmore street, Los Angeles, California, and is engaged in an automobile business.

Frank Peters, '31, engineer in the state highway department was among homecomers at the college.

John C. Thysell, '08. of the federal experiment station at Mandan, N. D., came home also.

Charles H. Clarke, '08, engaged in a seed business in Chicago was one of the prodigal sons, November 4.

Among alumnae and former students at the Delta Phi Beta house during homecoming were: Marion McLachlin, teaching, Fargo; Edith Hook, teaching, Dilworth, Minn.; Mabel Stewart, Fargo; Isabel Rose, teaching, Fargo; Mrs. Lynn Huey (Marcia Berg), Cavalier, N. D.; Gladys Larson, teaching, Moorhead, Minn.; and Mrs. Roy Lawrence.

At the Phi Upsilon house were: Hildur Sorenson, Devils Lake; Lillian Miesen, teaching, Hillsboro, N. D.; Eleanor Trowbridge, teaching, Dickinson, N. D.; Mildred Jenkins, teaching, Barnesville, Minn.; Alice Woldy, teaching, Little River, Minn.; Ann Jorgenson, Ulin, Minn.; Dorothy Nevramon, teaching, Wimbledon, N. D.

Bernice Noyes, '21, is teaching at Rugby, N. D.

Ethel McGuigan, '21, teaching.

E. W. Anderson, 1914 graduate of the North Dakota Agricultural College, was a visitor here Friday, Nov. 17. Mr. Anderson was enroute to Havre, Mont., where he will be engaged by the Northwest Wheat Growers' Association in organization work.

MARRIAGES

Miss Vera J. Muir, Grand Forks, to T. J. Gullickson, F. H. '22, Gilby, N. D.

Miss Olivia M. Wild, Osnabrock, N. D., president of the senior class of 1917 to O. S. Johnson, of Langdon, N. D.

Miss Bernice Gilderhus, Plaza, N. D., to Herbert W. Herzer, '18, at Minot, N. D. Herzer is in the railway postal service at Plaza, N. D.

Engineer Graduates Widely Distributed

The diversity of the engineering field is demonstrated best probably in a list of the graduates of the school which follows as a part of this issue's alumni notes. Preceding issues have traced the whereabouts of alumni of other schools and departments of the college.

B. F. Meinecke, B. S. Mechanical Engineering, 1899. Second graduate in mechanical engineering. Former mechanical engineer for Swift and Company, St. Paul. Building contractor of Fargo.

Thomas H. Heath, B. S. Mechanical Engineering, 1900. Enterprise, Kansas. Managing engineer of various manufacturing corporations. Former engineering adjustor at Seattle. Editor of Spectrum during his student days.

F. O. Olsen, B. S., Mechanical Engineering, 1900. Manager of A. J. Olson Co., elevators and seedsmen, Fargo. Contracts in seed potatoes, seeds and grains.

T. W. Osgood, B. S. Mechanical Engineering, 1902. Superintendent department of public safety, California Industrial Accident Commission. Former city engineer at Medford, Oregon. Editor of Spectrum, N. D. A. C.

R. M. Dolve, B. S., Mechanical Engineering, 1905. M. S. Cornell University 1920. Professor of mechanical engineering, N. D. A. C., formerly professor of agricultural engineering.

Carl O. Hulbert, B. S. Mechanical Engineering, 1905. He demonstrated that a student could earn more money while a student than was necessary to pay his expenses. He was an electrical expert in the testing department of the General Electric Company when he was accidentally killed.

Elmer M. May, B. S. Mechanical Engineering, 1905, Vice-president of the Fargo Cornice and Ornament Company. One of the men who put engineering with the sheet metal business. Prominent as an energetic alumnus.

Adolph M. Mikkelson, B. S. Mechanical Engineering, 1905. Vice-president and general manager of the Twin City Life Insurance Company. "Mike" was the longest engineer ever graduated at the A. C. and one of the most versatile, as his job shows.

Fred A. Birch, B. S. Mechanical Engineering, 1906. Secretary-treasurer of S. Birch & Sons Construction Company, Great Falls, Montana. Father of Alpha Mu. Designer and interior decorator of the "Blue Room." Former football star. Driver of the first fraternity goat.

C. I. Gunness, B. S. Mechanical Engineering, 1907. Professor of rural engineering at Agricultural College, Amherst, Mass. Formerly of the A. C. faculty. One of the designers of vocational engineering. Designer of courses in tractor operation for the Rumely Manufacturing Company.

Chas. R. Oshwald, B. S. Mechanical Engineering, 1908. Formerly of Fresno, California. Nothing has been heard of him since his departure to Alaska during the gold rush.

Carl O. Myhre, B. S.. Mechanical Engineering, 1909.

M. B. Erickson, B. S. in Mechanical Engineering, 1909. Assistant professor of mechanical engineering. Adopted father of all short course students. Designer of apparatus for instruction in gas engineering.

John Magill. B. S., 1909. The first graduate in civil engineering and like the first C. E. of other institutions has taken to farming.

David H. Moore. B. S. Mechanical Engineering, 1909. Electrical engineer for Day and Zimmerman, Philadelphia, Pennsylvania, consulting engineers. Formerly with General Electric Company, department manager Pittsfield plant of General Electric Company. Now engaged entirely as consulting engineer.

Victor C. Parker, B. S. Mechanical Engineering, 1909. Automobile dealer, Waterloo, Iowa. Former editor of the Spectrum. Managing editor of Motor Life, Winnipeg, Manitoba. Major in the A. E. F.

Robert E. Lembcke. B. S. in C. E., 1910. Contractor at Winnipeg until the war and last heard of at Flint, Michigan.

Thomas J. Lough. B. S. in C. E., 1910. With a power company in the East, later with the N. D. highway commission as project engineer and now with the highway department of Iowa.

Robert P. Stevens, B. S. in C. E., 1910. County engineer at Mandan until his death. A very promising young man.

Scott Drummond, B. S. in C. E., 1911. Brother of Royal Drummond 1915. Resident engineer with Great Northern on Surrey "cutoff." Later with A. M. Hopeman, Moorhead, until the entrance of U. S. in the war.

Harold M. Dodge, B. S. in M. S., 1911. Santa Monica, California, last known address.

Paul Funderhide, B. S. in C. E., 1911. Had considerable engineering experience before entering school. Drainage in Northern Minnesota and Florida Everglades. Since graduation has been variously employed, part of the time teaching in New Mexico.

Leroy D. Gifford, B. S. in M. E., 1911, Anaheim, California. Editor of Spectrum, moved west and in various employment on the coast, especially highway and municipal work. Later in manufacturing operation with citrus fruit.

Max H. Harrington, B. S. in M. E., 1911 (S. B., M. S., Massachusetts Institute of Technology, 1913.) Engineer at Philadelphia.

H. O. Rueber, B. S. in C. E., 1911, Berkeley, California. Brother of former coach. Football and baseball teams.

L. A. Welo, B. S. in C. E., 1911. M. S. University of Illinois. Specialist in Physics. Ph. D. University of California. Research in Physics. Former assistant professor of physics, University of Minnesota. Research laboratory, forestry investigations, University of Wisconsin. Student in University of Christiania, Norway.

Eric Martinson, B. S. in C. E., 1912. County highway engineer, Moorhead, Minnesota.

C. H. Wheeler, B. S. in C. E., 1912. Former student manager of athletics. Major in Engineering Corps, A. E. F.

Fred H. Hackett, B. S. in M. E., 1913. Instructor in technical high school at Wakefield, Mich. Center on football team at A. C.

John Limberg, B. S. in M. E., 1913. Electrician Tire Hospital. Fargo. Former instructor in motor vehicle electricity in S. A. T. C. laboratories.

Frank Peters, B. S. in M. E., 1913. State highway commission. Student manager of athletics.

William Rommel. B. S. in M. E., 1913. Died October 22, 1918.

Oscar R. Westlund, B. S. in C. E., 1913. With brother in promotion of Canadian real estate.

Fritz Oscar Pearson, B. S. in C. E., 1914. Civil engineer, Newport News Shipbuilding & Drydock Co., Newport News, Va.

Gordon Albert Stumpf, B. S. in M. E., 1914. Inspection and assembly departments, Reo Motor Company, Lansing, Mich.

Royal H. Drummond, B. S., 1915. Professor Military Science and Tactics, Ft. Kearney Military Academy, Kearney, Neb. Former editor of the Spectrum. Major in world war.

Ralph M. Caulkins. B. S. in M. E., 1915. Former football quarterback of reputation. Major in A. E. F. First Lieutenant Inf. D. O. L. Schoefield Barracks, Hawaii.

Walter C. Bender, B. S. in M. E., 1917. Telephone engineer, Southern Bell Telephone and Telegraph Company, Atlanta, Ga.

Robert J. Jacobson, B. S. in M. E., 1917. City engineer, Fargo.

W. P. Tarbell, B. S. in C. E., 1918. Post graduate in sanitary engineering, University of Minnesota.

Ernest E. Johnson. B. S. in C. E., 1919. County engineer at Hillsboro, N. Dak.

Lynn H. Leslie, B. S. in C. E., 1916. Assistant in library in student days. After graduation with I. S. C. S. on railroad valuation. Now in business in Missouri.

Carl Winberg, B. S. in C. E.. 1919. Formerly county civil engineer at Hillsboro, now bridge contractor at same place.

Elmer Dynes, B. S. in Arch., 1921. On U. S. S. Oklahoma during war, member of "Doc's" band. Now teaching in mathematics department at A. C.

Oscar Jordheim, B. S. in C. E., 1921. Baseball man, now assistant city engineer, Fargo.

Sidney Sorkness, B. S. in C. E., 1921. Since graduation assistant engineer with "Ernie" Johnson at Hillsboro, now teaching "trig" and other mathematics at A. C.

James A. McLauchlin, B. S. in M. E., 1921. Instructor in Machine Shop at N. D. A. C. Inspector trades and industries commission for vocational training.

Archie Waldie, B. S. in M. E., 1921. Successor to Robert Mares as instructor in mechanical engineering at A. C.

Robert Mares, B. E. in M. E., 1921. Taught power machinery subjects last year and is now in high school work.

Victor Johnson, B. S. in M. E., 1922. After experience on the baseball team and in the local boiler house and graduation is with the General Electric Company.

Lawrence Bohnhoff, B. S. in C. E., 1922, Teaching in Frazee, Minn., high school. He was prominent in the local chapter of A. A. E. and Delta Pi.

James Ballard, B. S. in C. E., 1922. After two summers' experience in municipal work in Fargo is teaching in Minnesota. His former associates miss his "Swedish" dialect stunts.

Merritt Hoffman, B. S. in architecture, 1922. Combining business with teaching in his home town of Courtenay.

Phil Moe. B. S. in Architecture, 1922. Following his profession in a local office.

COLLEGE CALENDAR

December 1, 1922—Friday—Third Annual One-Act Play Contest—The Little Country Theatre—Evening—seven-thirty o'clock.

December 5, 1922—Tuesday—Community Program—The Little Country Theatre—Evening—seven o'clock.

December 10, 1922—Sunday—Eighth Annual Christmas Program—College Armory—Afternoon—four o'clock.

January 2, 1923—Tuesday—Winter term begins for college, high school, and industrial courses. Registration for winter short courses. All classes assemble.

January 8, 1923—Monday—Inter-collegiate and inter-scholastic debates—The Little Country Theatre—Afternoon—three o'clock—Evening—eight o'clock.

January 12, 1923—Friday—Inter-society debates — College — High School—Industrial Course—The Little Country Theatre—Afternoon—three o'clock—Evening—eight o'clock.

January 17, 1923—Wednesday—The Welsh Singers—College Armory — Evening — eight o'clock.

January 19, 1923—Friday—Rip Van Winkle —The Little Country Theatre Players—The Little Country Theatre — Evening — eight o'clock.

January 25, 1923 — Thursday — Day of prayer for colleges.

Campus Notes

SHORT COURSES PLANNED IN UNITS OF TWO WEEKS

To meet the demand and the need for short, practical winter courses in agriculture and home economics a thoroughly reorganized series of eight and ten week short courses will be given at the North Dakota Agricultural College beginning early in January and ending March 9, 1923, according to A. H. Parrott, registrar. The home economics and automechanics short courses will open January 2, and the special courses in agriculture and in elevator management will begin January 22.

Reorganization of the winter courses in agriculture and home economics will consist of the division of the work into units of two weeks each, each to cover completely certain subjects such as farm crops or dairying in the agricultural course, and household management or millinery in the home economics course. The new arrangement, according to college officials, will allow persons who cannot stay during the entire eight or ten weeks to concentrate on a phase of the work in which they are especially interested. The detailed program for the short course in agriculture will be completed in a few weeks.

The largest radio broadcasting station between Minneapolis and the coast was opened recently in the engineering building following the installation of new equipment which will give the station a range of 1,200 miles. Weather reports, news reports, concerts, and general programs will be broadcast by the station, under the direction of E. S. Keene, dean of the School of Engineering, and A. E. Hamilton, student operator.

"The Kind of Rural Schools We Ought to Have" was the subject of and address by Dr. John Lee Coulter, president, at the Southwest Teachers' Association Convention, Dickinson, October 20.

County agents in 25 counties of North Dakota placed a total of 7,235 laborers with farmers for harvesting and threshing this year, according to figures compiled by the Extension Division of the college.

Flax is due for a come-back in North Dakota, and growers of wilt-resistant flax and elevators that handle wilt-resistant seed, should by all means save seed for the spring demand, stated Dr. P. F. Trowbridge, director of the Experiment station recently.

Vachel Lindsay, well-known poet, gave interpretive readings from his poems at a convocation of students which filled the armory, Monday morning, October 30. Raymond Robins, social economist and industrial expert, appeared at a convocation November 2.

Dr. J. H. Worst Dr. Coulter

When Dr. J. H. Worst celebrated his fiftieth wedding anniversary early in October, students, faculty and townspeople also celebrated his 21 years as president of the North Dakota Agricultural College. Dr. Worst spoke to a special convocation of students and with Mrs. Worst was entertained by the fraternities, student and business men's organizations of the city.

Twelve faculty members of the college, members of Sigma Xi, honorary scientific fraternity, organized a club at the college recently which will carry on the work of the parent organization at A. C. The local members are: Dr. E. S. Reynolds, Dr. R. T. Hance, Dr. P. F. Trowbridge, Dr. W. T. Pearce, Dr. H. L. Walster, Dr. Wanda Weniger, W. E. Brentzel, Miss Mayme Dworak, G. D. Van Dyke, C. E. Mangels, E. J. Griswold, and J. E. Chapman.

North Dakota stock judging team that is competing at the International Live Stock Show at Chicago, December 2, consists of Ronald Bentley, Fargo; Fred Willson, Leal; Burt Oderkirk, Fargo; Benjamin McCaul, Ayr; Chester Mathiason, Perley; and Leslie Swanson, Fairmount.

Officers of the A. C. Education Club elected for the present academic year are: Howard Bateson, Rolla, president; James Horne, Penn, vice-president; Hubert McClellon, Larimore, secretary; Marian Pannebaker, Mapleton, treasurer.

Lyle Mowris, Larimore, has been elected president of the N. D. A. C. Pharmacy club at the first meeting of the organization this fall.

The Home Economics club, organized this fall, elected Edna Sommerfield, Fargo, president; Mary Ross, Fargo, vice-president; Mildred Lathrop, Hope, secretary; and Myrtle Euren, Fargo, treasurer.

The Castalian Literary Society elected Ingeborg Jonasson, Hallson, president of the organization at its meeting, October 16.

The annual one-act play contest between members of the four classes of the college was held December 1.

Captain Robert J. King, Infantry U. S. A., has recently been added to the department of military science and tactics.

The skating ring north of the college Y. M. C. A. will be flooded as soon as the weather permits, according to college officials.

The average grade during the Spring term of 1922 for all students was 81.5, with the women students averaging 82.7 and the men 81.

Jonas Sturlaugson, sophomore, was awarded the Alpha Zeta loving cup at a smoker of the honorary agricultural fraternity November 18, for having the highest standings in the freshman class of the school of agriculture last year.

Significant investigation and studies are in progress by members of college Experiment Station staff along three lines of wheat work,—studies and tests on Durum wheat and varieties best suited for the manufacture of seminola; the problem of dockage and cleaning devices and machinery; and grade grading, particularly in its relation to milling qualities of wheats and gluten contents.

Alton Packard, cartoonist and humorist, appeared as the first member of the annual lyceum course at the Agricultural College, November 7. Isaac Marcosson, noted American journalist, gave a lecture on "Adventures in Interviewing," November 28. Other numbers include the Welsh Singers, January 17, Lorado Taft, sculptor, February 15, and the Harp Ensemble Company, March 8.

Dr. W. T. Pearce, head of the School of Chemistry and Technology, has an illustrated article describing the work of the school in the October issue of Chemical Age, New York City.

Eleven members of the College faculty who took active part in the program of the thirty-fifth convention of the North Dakota State Teachers' Association at Fargo, November 22 to 24 are: Prof. I. W. Smith, president of the science and mathematics department of the association; Dr. L. L. Carrick, who discussed a chemistry topic; Prof. Leon Metzinger, who spoke on the subject "Teaching Beginning French"; E. H. Jones lead a discussion on Smith-Hughes vocational agricultural training; Mrs. Myrtle Gleason Cole, dean of women, gave the president's address to the home economics group; Miss Christine Findlayson, Miss Amy Euren, of the home economics department, and Miss Hazel Spencer of the state home demonstration office were on the program at the sessions of the home economics division.

About 125 boys and girls club members of North Dakota, winners in county club contests will be guests of the college at the Thirteenth Annual Boys and Girls Club Achievement Institute during the week beginning December 18, according to Harry E. Rilling, state club leader.

Miss Irene Dunne, assistant club leader, operated for appendicitis and confined to a hospital in Fargo during the first few weeks of November, has returned to her work in the Extension Division.

Student elections held October 30 resulted in the following choice of class officers:

Senior Class: Harper J. Brush, President; Iva McCracken, Vice-President; Ronald C. Bentley, Treasurer.

Junior Class: Claude O. Ebling, President; Violet Erickson, Vice-President; Percy I. Flem, Secretary; Lorin Meecham, Treasurer; Arni Helgason (Tied).

Sophomore Class: Theodore Greenfield, President; Glade Latimer (Tied); Carleton Rydstrom, Vice-President; Raymond Pike, Secretary; Walter Bohnsack, Treasurer.

Freshman Class: Byron H. Hanson, President; Leone Sands, Vice-President; Grace Fuller, Secretary; Marie Smith, Treasurer.

The Edwin Booth dramatic society gave as ''Cappy Ricks'' its fall term play, November 22.

Fifty men are enrolled in physical education in the high school department, according to S. E. Borleske, athletic director. Eight men are enrolled in the coaching course offered to college students

Four new instructors, engaged after fall term courses had begun, to care for the swelled classes due to the increased enrollment this year are: Miss Frances Lamb, English, graduate of the University of Minnesota, and formerly instructor at Fargo College; Sidney Sorkness, mathematics, A. C. graduate; Miss Minnie J. Wangen, foreign languages, of Washington State College, at Idaho Technical Institute last year; Miss Elizabeth Pollock, fine arts, A. C. graduate. A new instructor in chemistry will be appointed soon. These members make a total of 16 additions to the staff of the Agricultural College this year.

The A. C. high school had a football team this fall, for the first time in its history. ''Buck'' Robbins, Bison tackle coached the team.

One new bulletin and six new circulars have been released by the Experiment Station and the Extension Division of the college during the past two months.

The bulletin is 164, Oat Varietal Trials, by Theodore E. Stoa. The new circulars are, 51. Feeding and Management of Dairy Cattle, by J. R. Dice; 52, Poultry Houses in North Dakota, by O. A. Barton; 53, Cull the Poultry Flock, by O. A. Barton; 54, Feeding Farm Poultry, by O. A. Barton and G. W. McIlroy; 55, The County Agents Job; and 56, Dairy Evolution in North Dakota, by J. H. Shepperd.

A double course bowling alley has recently been installed in the college Y. M. C. A.

The A. C. faculty is represented in the city volley ball tournament, which include teams representing The Lions, Kiwanis, Rotarians. K. of C., Hanson Auto Tractor School, two teams from the Fargo Y. M. C. A., Periscope Club, and the Knerr Dairy company.

George Bohlig, Fargo, cadet major, was elected chairman of the general R. O. T. C. executive committee. Noble Martin, cadet major and second in command among student officers, is this year's leader of the Military Ball, with George Bohnsack, secretary of the executive committee.

Unusual improvement has been made in the local R. O. T. C. unit during the past half year, according to Col. T. C. Muller, corps area inspector, during his recent inspection at A. C., who predicts that the college cadet corps will earn an honor rating if the present status continues.

Special convocations were held at the same hour by the eight schools of the college on November 15 at 9 a. m. for the purpose of fostering group spirit and understanding among faculty and students. Harry F. Atwood of Chicago, author of ''Back to the Republic'' was the speaker at convocation Monday November 13 at 3 p. m.

Basket ball and hockey tournaments among the girls began during the early part of November under the direction of Miss Ruth Andrews, physical director for women. Lillian Hovland, '24, Flaxton, is manager of the hockey tournament, and Glade Latimer, '25, Fargo, is making arrangements for basket ball games.

To pick the most popular girl on the campus, the 1924 Agassiz is conducting a student contest based on subscription coupons. The Agassiz is also holding an art contest.

An Agricultural Education news letter, and a letter by the supervisor of home economics education in the state are being circulated by E. H. Jones, department of agricultural education and Miss Christine Findlayson, supervisor of home economic education.

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